Outer Continental Shelf
Air Permit Application
Volume I

Chukchi Sea

Devil's Paw Prospect

November 2011

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Section 1
Project Overview

ConocoPhillips- Chukchi (Devil's Paw) Exploratory Project Overview

Overview

ConocoPhillips Company (COP) proposes to conduct exploratory drilling on the Devil's Paw prospect in the Chukchi Sea. The prospect's location ranges from 75-100 statute miles (120-160 kilometers) from the nearest point on the Alaska coast. See **Figure 1-1** for a map of the Devil's Paw prospect location relative to the Alaska coast.

The initial drilling program (jackup to jackdown) is expected to take approximately 100 days and will commence as soon as the summer/fall of 2013. Depending upon what is learned as a result of the first year of drilling, COP could drill one to three additional appraisal wells per year in later years.

The project will utilize a jackup rig and a number of support vessels to conduct the exploration. It is important to emphasize that this project and permit are expected to cover just exploration and delineation activities. Should the project proceed to development and production, it is probable a new air permit will be necessary.

This project will minimize air quality impacts by:

- Emitting no more than 225 tons per year of any single criteria pollutant;
- Emitting no more than 40,000 tons per year of greenhouse gases;
- Utilizing ultralow sulfur diesel (ULSD) fuel in all project combustion equipment; and
- Utilizing selective catalytic reduction (SCR) technology to reduce oxides of nitrogen (NOx) emissions from the rig's main drilling engines and on the main and auxiliary engines on the icebreaker vessels;

As a result, this project's annual emissions do not qualify for a major source construction permit (i.e., a Prevention of Significant Deterioration (PSD) permit) and will, instead, be permitted under Title V of the Clean Air Act (i.e., a 40 CFR 71 operating permit will be issued). And as demonstrated in the accompanying analysis, onshore air quality impacts from this project are well below all the national ambient air quality standards (NAAQS) as well as the regulatory-relevant significant impact levels (SILs).

Operational Description

At the beginning of the drilling season, the rig will be towed (it has no self-propulsion capability) to a planned drilling site, jacked up and prepared for drilling over several days. Drilling at the drilling site could take a portion of the season or, comprise the entire drilling season. If rig drilling must cease during the season for safety reasons due to ice movement too close to the rig, the rig platform will be lowered, the legs raised and

the rig will be towed to another location beyond the ice to wait for the ice conditions to clear before returning to the drill site to jack back up and resume drilling.

In addition to the jackup rig, several vessels will be utilized within 25 miles of the rig to support the exploration activities. These vessels include those necessary to tow the rig into place and assist in its erection, icebreakers to be used in the event of ice incursions too near the jack-up rig, supply vessels for use in transporting equipment and fuel to the rig, vessels used for oil spill response prevention, activities, and exercises, vessels used for personnel safety, and vessels used to conduct environmental monitoring. Due to the unequal lead times related to obtaining the air permit and in contracting rigs and vessels, no rig or support vessels have been yet contracted. As such, COP has prepared this application based upon representative equipment planned for this project. COP will utilize equipment consistent with the parameters (equipment sizes, emissions egress parameters, emissions etc) in this application or, as necessary, apply for amended permits to address differences in the project equipment. The vessel types planned to be used and their respective functions are described below.

Oil Spill Response Vessels (OSRVs) and Workboats - An OSRV ("Dedicated OSRV") fully equipped for oil spill response will be generally located within approximately 3 miles of the jackup rig during drilling activities. This vessel will be either cruising or anchored during this time. This OSRV will be loaded with two smaller workboats (34' each) that can be quickly offloaded to assist in oil response activities or as fast response craft. During rig fueling activities, this OSRV or a workboat will be used to lay containment boom in the area of the refueling vessel and rig. The duration of each jackup rig fueling event is typically six hours including the laying and removal of boom.

A second OSRV, also loaded with 34' workboats, will be located beyond 25 miles of the rig except for up to 48 hours per season during which time the OSRV and two workboats are anticipated to be needed for mandated spill response practice exercises.

Icebreakers - Two icebreakers will be used for ice management. These icebreakers are not expected to be needed within 25 miles of the jackup rig but, to account for the possibility of ice incursion, are included in the permitted support fleet inventory. In no case are these vessels expected to be needed but for much less than 675 hours per season each. Ice incursions within 25 miles of the jackup rig are actionable according to project guidelines and, in such events, efforts commence to cease drilling activities in preparation for rig removal from the drilling location. As noted above, these vessels will employ SCR technology on the main and auxiliary engines to control NOx emissions.

Offshore Supply Vessels, Ware Vessel - The rig will be resupplied regularly to maintain drilling activities. There are two options under consideration for resupply of the rig depending on the rig finally selected. One option is to use two Offshore Supply

Vessels (OSVs) making up to a total of two supply trips per day for up to three days immediately after rig jack up and then alternating trips at a rate of approximately once every four days during the season. Option two is to use a Ware Vessel (w/ an OSV and an anchor handling tug supply tug vessel as backup) which is much larger in supply capacity than an OSV. The Ware Vessel will also make up to two trips per day for up to three days subsequent to jack up and then make trips an average of every 6 days during the remainder of the season. In either case, each supply vessel will transfer supplies while being held next to the jackup rig with Dynamic Positioning (i.e., without physical attachment to the rig) and use a crane to move supplies onto and off the rig. The OSVs will also be used to tow the jackup rig to the drilling site(s) and for rig removal at project conclusion or in the event of an ice incursion.

Spill Storage Tanker (SST) – An SST will be employed for oil spill response and oil spill response exercises. It will be located beyond 25 miles of the jackup rig except during mandated exercises. The exercises are expected to last no more than 48 hours per season. In an exercise, the SST will likely cruise to a location near the rig and anchor for use in conjunction with the OSRVs and workboats.

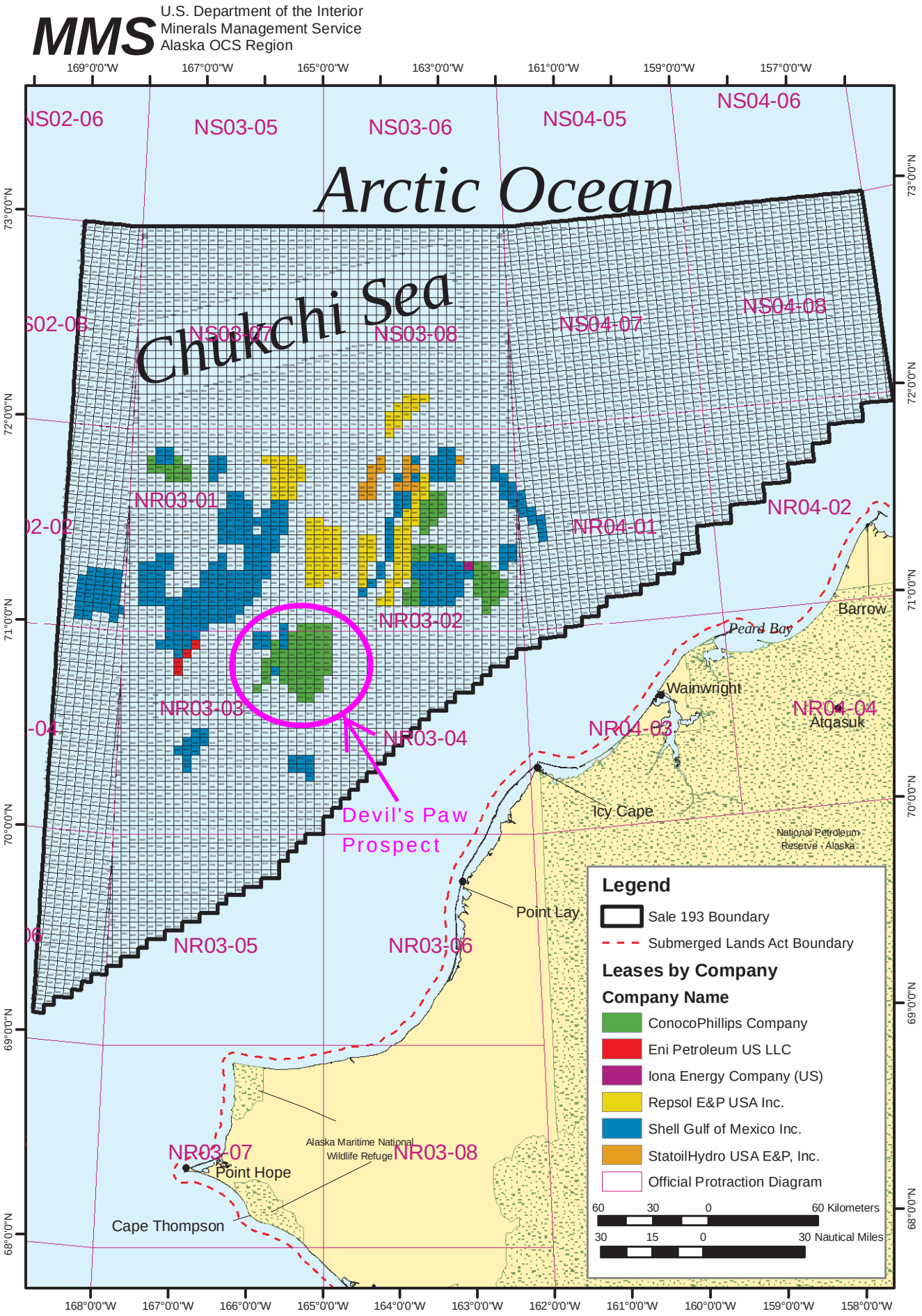
Anchor Handling Tug Supply (AHTS) Vessels - To tow the jackup rig to the drilling site, or move the rig to another site, an AHTS will be used (along with two OSVs or an additional AHTS And OSV). The application assumes three movements of the jackup rig during a drilling season.

A second AHTS may be used as backup to supply operations as discussed in option two above. If the Ware Vessel is unavailable during the season, the second AHTS and an OSV may replace it. These vessels can perform the same functions as the Ware Vessel, including refueling and resupplying the rig. However, they will both remain outside of the 25 mile radius unless they are needed for supply operations.

Marine Research Vessel- A marine research vessel may be operated within 25 miles of the jackup rig to conduct marine animal observations and other research and collect data during drilling activities. This vessel is planned to operate no more than 600 hours per drilling season within the 25 mile radius of the jackup.

Section 2
General Information and Summary

Figure 1-1. Chukchi Sea Leases by Company



United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 04/30/2012

Federal Operating Permit Program (40 CFR Part 71)

GENERAL INFORMATION AND SUMMARY (GIS)

A. Mailing Address and Contact Information

Facility name **Devil's Paw Exploration Project**

Mailing address: Street or P.O. Box **ConocoPhillips Company, 700 G street, ATO-1970, P.O. Box 100360**

City **Anchorage** State **AK** ZIP **99510**

Contact person: **Brad Thomas** Title **Senior Environmental Scientist**

Telephone **(907) – 263 – 4741** Ext. _____

Facsimile **(907) – 265 – 6216**

B. Facility Location

Temporary source? ___Yes **X** No Plant site location **Lease Sale Number 193; Devil's Paw Prospect**

Official Protraction Diagram (OPD) number	**Lease Block number**	Official Protraction Diagram (OPD) number	**Lease Block number**	Official Protraction Diagram (OPD) number	**Lease Block number**	Official Protraction Diagram (OPD) number	**Lease Block number**
NR03-01	**7121**	NR03-03	**6119**	NR03-03	**6218**	NR03-03	**6321**
NR03-01	**7122**	NR03-03	**6120**	NR03-03	**6220**	NR03-03	**6322**
NR03-01	**7123**	NR03-03	**6121**	NR03-03	**6221**	NR03-03	**6323**
NR03-02	**7101**	NR03-03	**6122**	NR03-03	**6222**	NR03-03	**6324**
NR03-03	**6021**	NR03-03	**6123**	NR03-03	**6223**	NR03-03	**6372**
NR03-03	**6022**	NR03-03	**6124**	NR03-03	**6224**	NR03-03	**6373**
NR03-03	**6023**	NR03-03	**6168**	NR03-03	**6268**	NR03-04	**6001**
NR03-03	**6024**	NR03-03	**6169**	NR03-03	**6270**	NR03-04	**6051**
NR03-03	**6069**	NR03-03	**6170**	NR03-03	**6271**	NR03-04	**6101**
NR03-03	**6071**	NR03-03	**6171**	NR03-03	**6272**	NR03-04	**6151**
NR03-03	**6072**	NR03-03	**6172**	NR03-03	**6273**	NR03-04	**6201**
NR03-03	**6073**	NR03-03	**6173**	NR03-03	**6274**		
NR03-03	**6074**	NR03-03	**6174**	NR03-03	**6317**		

See Figure 1-1 Map of Lease Blocks by Company

City: **NA** State: **NA** County: **NA** EPA Region: **10**

Is the facility located within:

Indian lands? ___YES **X** NO OCS waters? **X** YES ___ NO

Non-attainment area? ___ YES **X** NO If yes, for what air pollutants? _____

Within 50 miles of affected State? __ YES **X** NO If yes, What State(s)? _____

C. Owner

Name **David W. Brown, Manager, Land-Alaska, ConocoPhillips Company**

Street/P.O. Box **700 G Street, ATO-1470, P.O. Box 100360**

City **Anchorage** State **AK** ZIP **99510**

Telephone **(907) – 265 – 6914** Ext_____

D. Operator

Name **Chip Alvord, Drilling Manager, ConocoPhillips Company**

Street/P.O. Box **700 G Street, ATO-1570, P.O. Box 100360**

City **Anchorage** State **AK** ZIP **99510**

Telephone **(907) – 265 – 6120** Ext_____

E. Application Type

Mark only one permit application type and answer the supplementary question appropriate for the type marked.

X Initial Permit ___ Renewal ___ Significant Mod ___ Minor Permit Mod(MPM)

___ Group Processing, MPM ___ Administrative Amendment

For initial permits, when did operations commence? **07/15/2013**

For permit renewal, what is the expiration date of current permit? **NA**

F. Applicable Requirement Summary

Mark all types of applicable requirements that apply.

___ SIP ___ FIP/TIP ___ PSD ___Non-attainment NSR
___ Minor source NSR ___ Section 111 ___ Phase I acid rain ___Phase II acid rain

___ Stratospheric ozone **X** OCS regulations ___ NESHAP ___ Sec. 112(d) MACT

___ Sec. 112(g) MACT ___ Early reduction of HAP ___ Sec 112(j) MACT ___ RMP [Sec.112(r)]

___ Tank Vessel requirements, sec. 183(f)) ___ Section 129 Standards/Requirement

___ Consumer / comm.. products, ' 183(e) _**X**_ NAAQS, increments or visibility (temp. sources)

Has a risk management plan been registered? ___YES **X** NO Regulatory agency _____

Phase II acid rain application submitted? ___YES **X** NO If yes, Permitting authority _____

G. Source-Wide PTE Restrictions and Generic Applicable Requirements

Cite and describe any emissions-limiting requirements and/or facility-wide "generic" applicable requirements.

Rolling 12 month limits for Nitrogen Oxides (NOx), Carbon Monoxide (CO) and Greenhouse Gases (GHGs) (see I-COMP section for specific limits)

H. Process Description

List processes, products, and SIC codes for the facility.

Process	Products	SIC
Oil Exploration	**NA**	**1311**

I. Emission Unit Identification

Assign an emissions unit ID and describe each emissions unit at the facility. Control equipment and/or alternative operating scenarios associated with emissions units should by listed on a separate line. Applicants may exclude from this list any insignificant emissions units or activities.

Emission Unit ID	Emissions Unit Description
Drill Rig Equipment	
DR-01-ME-01	Drill Rig (1) Main Engine (1) NOx Control Equipment: Selective Catalytic Reduction (SCR)
DR-01-ME-02	Drill Rig (1) Main Engine (2) NOx Control Equipment: Selective Catalytic Reduction (SCR)
DR-01-ME-03	Drill Rig (1) Main Engine (3) NOx Control Equipment: Selective Catalytic Reduction (SCR)
DR-01-ME-04	Drill Rig (1) Main Engine (4) NOx Control Equipment: Selective Catalytic Reduction (SCR)
DR-01-EE-01	Drill Rig (1) Emergency Back-up Engine (1)
DR-01-CE-01	Drill Rig (1) Cement Engine (1)
DR-01-CE-02	Drill Rig (1) Cement Engine (2)
DR-01-LW-01	Drill Rig (1) Logging Winch (1)
DR-01-HE-01	Drill Rig (1) Heater (1)
DR-01-HE-02	Drill Rig (1) Heater (2)
DR-01-NC-01	Drill Rig (1) Incinerator (1)
DR-01-FT-01	Drill Rig (1) Fuel Tank (1)
DR-01-FT-02	Drill Rig (1) Fuel Tank (2)
DR-01-MD-01	Mud Degassing
Ice Breaker 1	
IB-01-ME-01	Ice Breaker (1) Main Engine (1) NOx Control Equipment: Selective Catalytic Reduction (SCR)
IB-01-ME-02	Ice Breaker (1) Main Engine (2) NOx Control Equipment: Selective Catalytic Reduction (SCR)
IB-01-ME-03	Ice Breaker (1) Main Engine (3) NOx Control Equipment: Selective Catalytic Reduction (SCR)
IB-01-ME-04	Ice Breaker (1) Main Engine (4) NOx Control Equipment: Selective Catalytic Reduction (SCR)
IB-01-HG-01	Ice Breaker (1) Harbor Generator (1)
IB-01-EG-01	Ice Breaker (1) Emergency Generator (1)
IB-01-BO-1	Ice Breaker (1) Boiler (1)
IB-01-BO-02	Ice Breaker (1) Boiler (2)
IB-01-NC-01	Ice Breaker (1) Incinerator (1)

Emission Unit ID	Emissions Unit Description
Ice Breaker 2	
IB-02-ME-01	Ice Breaker (2) Main Engine (1) NOx Control Equipment: Selective Catalytic Reduction (SCR)
IB-02-ME-02	Ice Breaker (2) Main Engine (2) NOx Control Equipment: Selective Catalytic Reduction (SCR)
IB-02-ME-03	Ice Breaker (2) Main Engine (3) NOx Control Equipment: Selective Catalytic Reduction (SCR)
IB-02-ME-04	Ice Breaker (2) Main Engine (4) NOx Control Equipment: Selective Catalytic Reduction (SCR)
IB-02-HG-01	Ice Breaker (2) Harbor Generator (1)
IB-02-EG-01	Ice Breaker (2) Emergency Generator (1)
IB-02-BO-01	Ice Breaker (2) Boiler (1)
IB-02-BO-02	Ice Breaker (2) Boiler (2)
IB-02-NC-01	Ice Breaker (2) Incinerator (1)
Oil Spill Response Vessel (Dedicated OSRV) 1	
SR-01-ME-01	Oil Spill Response Vessel (1) Main Engine (1)
SR-01-ME-02	Oil Spill Response Vessel (1) Main Engine (2)
SR-01-TE-01	Oil Spill Response Vessel (1) Thruster Engine (1)
SR-01-TE-02	Oil Spill Response Vessel (1) Thruster Engine (2)
SR-01-TE-03	Oil Spill Response Vessel (1) Thruster Engine (3)
SR-01-GE-01	Oil Spill Response Vessel (1) Generator (1)
SR-01-GE-02	Oil Spill Response Vessel (1) Generator (2)
SR-01-EG-01	Oil Spill Response Vessel (1) Emergency Generator (1)
Oil Spill Response Vessel (OSRV) 2	
SR-02-ME-01	Oil Spill Response Vessel (2) Main Engine (1)
SR-02-ME-02	Oil Spill Response Vessel (2) Main Engine (2)
SR-02-TE-01	Oil Spill Response Vessel (2) Thruster Engine (1)
SR-02-TE-02	Oil Spill Response Vessel (2) Thruster Engine (2)
SR-02-TE-03	Oil Spill Response Vessel (2) Thruster Engine (3)
SR-02-GE-01	Oil Spill Response Vessel (2) Generator (1)
SR-02-GE-02	Oil Spill Response Vessel (2) Generator (2)
SR-02-EG-01	Oil Spill Response Vessel (2) Emergency Generator (1)
Anchor Handling Tug Supply 1	
AT-01-ME-01	Anchor Handling Tug Supply (1) Main Engine (1)
AT-01-ME-02	Anchor Handling Tug Supply (1) Main Engine (2)
AT-01-TE-01	Anchor Handling Tug Supply (1) Thruster Engine (1)
AT-01-TE-02	Anchor Handling Tug Supply (1) Thruster Engine (2)
AT-01-TW-01	Anchor Handling Tug Supply (1) Tow Winch Engine (1)
AT-01-GE-01	Anchor Handling Tug Supply (1) Generator (1)
AT-01-GE-02	Anchor Handling Tug Supply (1) Generator (2)
AT-01-EG-01	Anchor Handling Tug Supply (1) Emergency Generator (1)

Emission Unit ID	Emissions Unit Description
Anchor Handling Tug Supply 2 (Ware Vessel Backup)	
AT-02-ME-01	Anchor Handling Tug Supply (2) Main Engine (1)
AT-02-ME-02	Anchor Handling Tug Supply (2) Main Engine (2)
AT-02-TE-01	Anchor Handling Tug Supply (2) Thruster Engine (1)
AT-02-TE-02	Anchor Handling Tug Supply (2) Thruster Engine (2)
AT-02-TW-01	Anchor Handling Tug Supply (2) Tow Winch Engine (1)
AT-02-GE-01	Anchor Handling Tug Supply (2) Generator (1)
AT-02-GE-02	Anchor Handling Tug Supply (2) Generator (2)
AT-02-EG-01	Anchor Handling Tug Supply (2) Emergency Generator (1)
Offshore Supply Vessels (OSV) 1	
SV-01-ME-01	Offshore Supply Vessel (1) Main Engine (1)
SV-01-ME-02	Offshore Supply Vessel (1) Main Engine (2)
SV-01-TE-01	Offshore Supply Vessel (1) Thruster Engine (1)
SV-01-TE-02	Offshore Supply Vessel (1) Thruster Engine (2)
SV-01-TE-03	Offshore Supply Vessel (1) Thruster Engine (3)
SV-01-GE-01	Offshore Supply Vessel (1) Generator (1)
SV-01-GE-02	Offshore Supply Vessel (1) Generator (2)
SV-01-GE-03	Offshore Supply Vessel (1) Generator (3)
SV-01-EG-01	Offshore Supply Vessel (1) Emergency Generator (1)
Offshore Supply Vessels (OSV) 2	
SV-02-ME-01	Offshore Supply Vessel (2) Main Engine (1)
SV-02-ME-02	Offshore Supply Vessel (2) Main Engine (2)
SV-02-TE-01	Offshore Supply Vessel (2) Thruster Engine (1)
SV-02-TE-02	Offshore Supply Vessel (2) Thruster Engine (2)
SV-02-TE-03	Offshore Supply Vessel (2) Thruster Engine (3)
SV-02-GE-01	Offshore Supply Vessel (2) Generator (1)
SV-02-GE-02	Offshore Supply Vessel (2) Generator (2)
SV-02-GE-03	Offshore Supply Vessel (2) Generator (3)
SV-02-EG-01	Offshore Supply Vessel (2) Emergency Generator (1)
Ware Vessel (WV)	
WV-01-ME-01	Ware Vessel (1) Main Engine (1)
WV-01-ME-02	Ware Vessel (1) Main Engine (2)
WV-01-ME-03	Ware Vessel (1) Main Engine (3)
WV-01-ME-04	Ware Vessel (1) Main Engine (4)
WV-01-GE-01	Ware Vessel (1) Generator (1)
WV-01-GE-02	Ware Vessel (1) Generator (2)
WV-01-GE-03	Ware Vessel (1) Generator (3)
WV-01-EG-01	Ware Vessel (1) Emergency Generator (1)

Emission Unit ID	Emissions Unit Description
Work Boats 1-4	
WB-01-PE-01	Work Boat (1) Propulsion Engine (1)
WB-01-PE-02	Work Boat (1) Propulsion Engine (2)
WB-02-PE-01	Work Boat (2) Propulsion Engine (1)
WB-02-PE-02	Work Boat (2) Propulsion Engine (2)
WB-03-PE-01	Work Boat (3) Propulsion Engine (1)
WB-03-PE-02	Work Boat (3) Propulsion Engine (2)
WB-04-PE-01	Work Boat (4) Propulsion Engine (1)
WB-04-PE-02	Work Boat (4) Propulsion Engine (2)
Marine Research Vessel	
MR-01-ME-01	Marine Research Vessel (1) Main Engine (1)
MR-01-GE-01	Marine Research Vessel (1) Generator (1)
MR-01-GE-02	Marine Research Vessel (1) Generator (2)
MR-01-GE-03	Marine Research Vessel (1) Generator (3)
Spill Storage Tanker	
ST-01-ME-01	Spill Storage Tanker (1) Main Engine (1)
ST-01-GE-01	Spill Storage Tanker (1) Generator (1)
ST-01-GE-02	Spill Storage Tanker (1) Generator (2)
ST-01-GE-03	Spill Storage Tanker (1) Generator (3)
ST-01-EG-01	Spill Storage Tanker (1) Emergency Generator (1)
ST-01-BO-01	Spill Storage Tanker (1) Boiler (1)
ST-01-BO-02	Spill Storage Tanker (1) Boiler (2)
All Vessels Fuel Tanks	
VE-01-FT-01	All Vessels (1) Fuel Tank (1) (insignificant emission unit)

J. Facility Emissions Summary

Enter potential to emit (PTE) for the facility as a whole for each air pollutant listed below. Enter the name of the single HAP emitted in the greatest amount and its PTE. For all pollutants stipulations to major source status may be indicated by entering "major" in the space for PTE. Indicate the total actual emissions for fee purposes for the facility in the space provided. Applications for permit modifications need not include actual emissions information.

NOx **225.1** tons/yr CO **182.7** tons/yr PM-10/2.5 **13.9** tons/yr PM **22.0** tons/yr VOC **28.5** tons/yr

SO2 **0.6** tons/yr H2S **0.02** tons/yr Lead **0.03** tons/yr H2SO4 **0.04** tons/yr Total HAP **3.09** tons/yr

Single HAP emitted in the greatest amount **Hydrogen Chloride** PTE **0.93** tons/yr

Total of regulated pollutants (for fee calculation), Sec. F, line 5 of form FEE **271.5** tons/yr

K. Existing Federally-Enforceable Permits

Permit number(s) **NA** Permit type **NA** Permitting authority **NA**

L. Emission Unit(s) Covered by General Permits

Emission unit(s) subject to general permit **NA**

Check one: **NA** ___ Application made ___ Coverage granted

General permit identifier **NA** Expiration Date **NA**

M. Cross-referenced Information

Does this application cross-reference information? ___ YES **X** NO (If yes, see instructions)

Section 3
Emission Unit Descriptions (EUD)

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 04/30/2012

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **DR-01-ME-01** Description **Drill Rig (1) Main Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2310000220**

B. Emissions Unit Description

Primary use **Primary Rig Power** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 22** MM BTU/hr Max. Design Heat Input **22** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD-Drilling	**199,236**	**167 gal/hr**	**400,800 gal/yr**
ULSD-Preload	**866**	**89 gal/hr**	**866 gal/yr**
ULSD-Preload Hold & Discharge	**180**	**30 gal/hr**	**180 gal/yr**
ULSD-Jackup to Final Air Gap	**108**	**72 gal/hr**	**108 gal/yr**
ULSD-Prepare for Drilling	**2,002**	**167 gal/hr**	**2,002 gal/yr**
Any one Drill Rig Main Engine may run up to 2400 hours per year.			

E. Associated Air Pollution Control Equipment

Emissions unit ID **DR-01-ME-01** Device type **Selective Catalytic Reduction (SCR)**

Air pollutant(s) Controlled **NOx** Manufacturer **TBD**

Model No. **TBD** Serial No. **TBD**

Installation date **TBD** Control efficiency (%) **79.1**

Efficiency estimation method **{[(uncontrolled NOx emission rate) - (controlled NOx emission rate)]/(uncontrolled NOx emission rate)}*(100%).**

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **DR-01-ME-02** Description **Drill Rig (1) Main Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2310000220**

B. Emissions Unit Description

Primary use **Primary Rig Power** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 22** MM BTU/hr Max. Design Heat Input **22** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD-Drilling	**199,236**	**167 gal/hr**	**400,800 gal/yr**
ULSD-Preload	**886**	**89 gal/hr**	**886 gal/yr**
ULSD-Preload Hold & Discharge	**180**	**30 gal/hr**	**180 gal/yr**
ULSD-Jackup to Final Air Gap	**108**	**72 gal/hr**	**108 gal/yr**
ULSD-Prepare for Drilling	**2,002**	**167 gal/hr**	**2,002 gal/yr**
Any one Drill Rig Main Engine may run up to 2400 hours per year.			

E. Associated Air Pollution Control Equipment

Emissions unit ID **DR-01-ME-02** Device type **Selective Catalytic Reduction (SCR)**

Air pollutant(s) Controlled **NOx** Manufacturer **TBD**

Model No. **TBD** Serial No. **TBD**

Installation date **TBD** Control efficiency (%) **79.1**

Efficiency estimation method **{[(uncontrolled NOx emission rate) - (controlled NOx emission rate)]/(uncontrolled NOx emission rate)}*(100%).**

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 04/30/2012

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **DR-01-ME-03** Description **Drill Rig (1) Main Engine (3)**

SIC Code (4-digit) **1311** SCC Code **2310000220**

B. Emissions Unit Description

Primary use **Primary Rig Power** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 22** MM BTU/hr Max. Design Heat Input **22** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD-Drilling	**199,236 gal/yr**	**167 gal/hr**	**400,800 gal/yr**
ULSD-Preload	**300 gal/yr**	**30 gal/hr**	**30 gal/yr**
ULSD-Preload Hold & Discharge	**180 gal/yr**	**30 gal/hr**	**180 gal/yr**
ULSD-Jackup to Final Air Gap	**108 gal/yr**	**72 gal/hr**	**108 gal/yr**
Any one Drill Rig Main Engine may run up to 2400 hours per year.			

E. Associated Air Pollution Control Equipment

Emissions unit ID **DR-01-ME-03** Device type **Selective Catalytic Reduction (SCR)**

Air pollutant(s) Controlled **NOx** Manufacturer **TBD**

Model No. **TBD** Serial No. **TBD**

Installation date **TBD** Control efficiency (%) **79.1**

Efficiency estimation method **{[(uncontrolled NOx emission rate) - (controlled NOx emission rate)]/(uncontrolled NOx emission rate)}*(100%).**

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 04/30/2012

Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **DR-01-ME-04** Description **Drill Rig (1) Main Engine (4)**

SIC Code (4-digit) **1311** SCC Code **2310000220**

B. Emissions Unit Description

Primary use **Primary Rig Power** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 22** MM BTU/hr Max. Design Heat Input **22** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**199,236 gal/yr**	**167 gal/hr**	**400,800 gal/yr**
Any one Drill Rig Main Engine may run up to 2400 hours per year.			

E. Associated Air Pollution Control Equipment

Emissions unit ID **DR-01-ME-04** Device type **Selective Catalytic Reduction (SCR)**

Air pollutant(s) Controlled **NOx** Manufacturer **TBD**

Model No. **TBD** Serial No. **TBD**

Installation date **TBD** Control efficiency (%) **79.1**

Efficiency estimation method **{[(uncontrolled NOx emission rate) - (controlled NOx emission rate)]/(uncontrolled NOx emission rate)}*(100%).**

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **DR-01-EE-01** Description **Drill Rig (1) Emergency Back-up Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2310000220**

B. Emissions Unit Description

Primary use **Emergency back-up power demand for multiple vessel needs**

Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<8.6** MM BTU/hr Max. Design Heat Input **8.6** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**4,864 gal/yr**	**65 gal/hr**	**4,864 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. **NA** Serial No. **NA**

Installation date **NA** Control efficiency (%) **NA**

Efficiency estimation method **NA**

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **DR-01-CE-01** Description **Drill Rig (1) Cement Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2310000220**

B. Emissions Unit Description

Primary use **Cementing** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<3.8** MM BTU/hr Max. Design Heat Input **3.8** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **ULSD** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**3,799 gal/yr**	**29 gal/hr**	**3,799 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **DR-01-CE-02** Description **Drill Rig (1) Cement Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2310000220**

B. Emissions Unit Description

Primary use **Cementing** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<3.8** MM BTU/hr Max. Design Heat Input **3.8** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **ULSD** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**3,799 gal/yr**	**29 gal/hr**	**3,799 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **DR-01-LW-01** Description **Drill Rig (1) Logging Winch (1)**

SIC Code (4-digit) **1311** SCC Code **2310000220**

B. Emissions Unit Description

Primary use **Oil Well Drilling Support Equipment**

Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<1.8** MM BTU/hr Max. Design Heat Input **1.8** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**3,626 gal/yr**	**13 gal/hr**	**3,626 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **DR-01-HE-01** Description **Drill Rig (1) Heater (1)**

SIC Code (4-digit) **1311** SCC Code **2310000220**

B. Emissions Unit Description

Primary use **Space Heating** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **External Combustion**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<3.5** MM BTU/hr Max. Design Heat Input **3.5** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**63,590 gal/yr**	**26 gal/hr**	**63,590 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **DR-01-HE-02** Description **Drill Rig (1) Heater (2)**

SIC Code (4-digit) **1311** SCC Code **2310000220**

B. Emissions Unit Description

Primary use **Space Heating** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **External Combustion**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<3.5** MM BTU/hr Max. Design Heat Input **3.5** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**63,590 gal/yr**	**26 gal/hr**	**63,590 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **DR-01-NC-01** Description **Drill Rig (1) Incinerator (1)**

SIC Code (4-digit) **1311** SCC Code **2310000220**

B. Emissions Unit Description

Primary use **Waste Incineration** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Incinerator**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 1.7** MM BTU/hr Max. Design Heat Input **1.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Waste**

Standby fuel type(s) **Ultra Low Sulfur Diesel (ULSD) for ignition only**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
Waste	**Negligible**	**Unknown**	**6203 BTU/lb**
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
Waste	**65 ton/yr**	**276 lb/hr**	**65 ton/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR PROCESS SOURCES (EUD-3)

A. General Information

Emissions unit ID **DR-01-MD-01** Description **Drill Rig (1) Mud Degassing (1)**

SIC Code (4-digit) **1311** SCC Code **2310112100**

B. Emissions Unit Description

Primary use or equipment type **Gas separation from drilling mud (venting)**

Manufacturer **NA** Model No. **NA**

Serial No. **NA** Installation date **NA**

Raw materials **Drilling mud that has been downhole and contains well gas**

Finished products **Drilling mud free of well gas**

Temporary source: **X** No ___Yes

C. Activity or Production Rates

Activity or Production Rate	Amount/Hour	Amount/Year
(Projected) Actual Rate	**833.3 ft^3 gas / hr**	**2,000,000 ft^3 gas / yr**
Maximum rate	**833.3 ft^3 gas / hr**	**2,000,000 ft^3 gas / yr**

D. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device Type **NA**

Manufacturer **NA** Model No **NA**

Serial No. **NA** Installation date **NA**

Control efficiency (%) **NA** Capture efficiency (%) **NA**

Air pollutant(s) controlled **NA** Efficiency estimation method **NA**

E. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (This is not common).

Stack height (ft) **NA** Inside stack diameter (ft) **NA**

Stack temp (F) **NA** Design stack flow rate (ACFM) **NA**

Actual stack flow rate (ACFM) **NA** Velocity (ft/sec) **NA**

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Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-01-ME-01** Description **Ice Breaker (1) Main Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<56.3** MM BTU/hr Max. Design Heat Input **70.4** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**287,801 gal/yr**	**426 gal/hr**	**426,000 gal/yr**
*** The total operating time of the two Ice Breakers will not exceed 1,350 hours per year. Any one Ice Breaker Main Engine may run up to 1,000 hours per year.**			

E. Associated Air Pollution Control Equipment

Emissions unit ID **IB-01-ME-01** Device type **Selective Catalytic Reduction (SCR)**

Air pollutant(s) Controlled **NOx** Manufacturer **TBD**

Model No. **TBD** Serial No. **TBD** Installation date **TBD**

Control efficiency (%) **80.1%**

Efficiency estimation method **{[(uncontrolled NOx emission rate) - (controlled NOx emission rate)]/(uncontrolled NOx emission rate)}*(100%).**

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-01-ME-02** Description **Ice Breaker (1) Main Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<56.3** MM BTU/hr Max. Design Heat Input **70.4** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**287,801 gal/yr**	**426 gal/hr**	**426,000 gal/yr**
*** The total operating time of the two Ice Breakers will not exceed 1,350 hours per year. Any one Ice Breaker Main Engine may run up to 1,000 hours per year.**			

E. Associated Air Pollution Control Equipment

Emissions unit ID **IB-01-ME-02** Device type **Selective Catalytic Reduction (SCR)**

Air pollutant(s) Controlled **NOx** Manufacturer **TBD**

Model No. **TBD** Serial No. **TBD** Installation date **TBD**

Control efficiency (%) **80.1%**

Efficiency estimation method **{[(uncontrolled NOx emission rate) - (controlled NOx emission rate)]/(uncontrolled NOx emission rate)}*(100%).**

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-01-ME-03** Description **Ice Breaker (1) Main Engine (3)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 42.2** MM BTU/hr Max. Design Heat Input **70.4** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**215,851 gal/yr**	**320 gal/hr**	**320,000 gal/yr**
*** The total operating time of the two Ice Breakers will not exceed 1,350 hours per year. Any one Ice Breaker Main Engine may run up to 1,000 hours per year.**			

E. Associated Air Pollution Control Equipment

Emissions unit ID **IB-01-ME-03** Device type **Selective Catalytic Reduction (SCR)**

Air pollutant(s) Controlled **NOx** Manufacturer **TBD**

Model No. **TBD** Serial No. **TBD** Installation date **TBD**

Control efficiency (%) **80.1%**

Efficiency estimation method **{[(uncontrolled NOx emission rate) - (controlled NOx emission rate)]/(uncontrolled NOx emission rate)}*(100%).**

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-01-ME-04** Description **Ice Breaker (1) Main Engine (4)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 42.2** MM BTU/hr Max. Design Heat Input **70.4** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**215,851 gal/yr**	**320 gal/hr**	**320,000 gal/yr**
*** The total operating time of the two Ice Breakers will not exceed 1,350 hours per year. Any one Ice Breaker Main Engine may run up to 1,000 hours per year.**			

E. Associated Air Pollution Control Equipment

Emissions unit ID **IB-01-ME-04** Device type **Selective Catalytic Reduction (SCR)**

Air pollutant(s) Controlled **NOx** Manufacturer **TBD**

Model No. **TBD** Serial No. **TBD** Installation date **TBD**

Control efficiency (%) **80.1%**

Efficiency estimation method **{[(uncontrolled NOx emission rate) - (controlled NOx emission rate)]/(uncontrolled NOx emission rate)}*(100%).**

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-01-HG-01** Description **Ice Breaker (1) Harbor Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 6.7** MM BTU/hr Max. Design Heat Input **6.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**404 gal/yr**	**50 gal/hr**	**404 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-01-EG-01** Description **Ice Breaker (1) Emergency Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Emergency backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 2.8** MM BTU/hr Max. Design Heat Input **2.8** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**171 gal/yr**	**21 gal/hr**	**171 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-01-BO-01** Description **Ice Breaker (1) Boiler (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Steam and/or Hot Water** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Commercial boiler**

Boiler horsepower rating **100** Boiler steam flow (lb/hr) **3450**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<3.7** MM BTU/hr Max. Design Heat Input **3.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**18,900 gal/yr**	**28 gal/hr**	**18,900 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-01-BO-02** Description **Ice Breaker (1) Boiler (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Steam and/or Hot Water** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Commercial boiler**

Boiler horsepower rating **100** Boiler steam flow (lb/hr) **3450**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<3.7** MM BTU/hr Max. Design Heat Input **3.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**18,900 gal/yr**	**28 gal/hr**	**18,900 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-01-NC-01** Description **Ice Breaker (1) Incinerator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Waste Incineration** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Incinerator**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 1.1** MM BTU/hr Max. Design Heat Input **1.1** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Waste**

Standby fuel type(s) **Ultra Low Sulfur Diesel (ULSD) for ignition only**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
Waste	**Negligible**	**Unknown**	**6203 BTU/lb**
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
Waste	**118,125 lb/yr**	**175 lb/hr**	**118,125 lb/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-02-ME-01** Description **Ice Breaker (2) Main Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<56.3** MM BTU/hr Max. Design Heat Input **70.4** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**287,801 gal/yr**	**426 gal/hr**	**426,000 gal/yr**
*** The total operating time of the two Ice Breakers will not exceed 1,350 hours per year. Any one Ice Breaker Main Engine may run up to 1,000 hours per year.**			

E. Associated Air Pollution Control Equipment

Emissions unit ID **IB-02-ME-01** Device type **Selective Catalytic Reduction (SCR)**

Air pollutant(s) Controlled **NOx** Manufacturer **TBD**

Model No. **TBD** Serial No. **TBD** Installation date **TBD**

Control efficiency (%) **80.1%**

Efficiency estimation method **{[(uncontrolled NOx emission rate) - (controlled NOx emission rate)]/(uncontrolled NOx emission rate)}*(100%).**

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-02-ME-02** Description **Ice Breaker (2) Main Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<56.3** MM BTU/hr Max. Design Heat Input **70.4** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**287,801 gal/yr**	**426 gal/hr**	**426,000 gal/yr**
*** The total operating time of the two Ice Breakers will not exceed 1,350 hours per year. Any one Ice Breaker Main Engine may run up to 1,000 hours per year.**			

E. Associated Air Pollution Control Equipment

Emissions unit ID **IB-02-ME-02** Device type **Selective Catalytic Reduction (SCR)**

Air pollutant(s) Controlled **NOx** Manufacturer **TBD**

Model No. **TBD** Serial No. **TBD** Installation date **TBD**

Control efficiency (%) **80.1%**

Efficiency estimation method **{[(uncontrolled NOx emission rate) - (controlled NOx emission rate)]/(uncontrolled NOx emission rate)}*(100%).**

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-02-ME-03** Description **Ice Breaker (2) Main Engine (3)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 42.2** MM BTU/hr Max. Design Heat Input **70.4** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**215,851 gal/yr**	**320 gal/hr**	**320,000 gal/yr**
*** The total operating time of the two Ice Breakers will not exceed 1,350 hours per year. Any one Ice Breaker Main Engine may run up to 1,000 hours per year.**			

E. Associated Air Pollution Control Equipment

Emissions unit ID **IB-02-ME-03** Device type **Selective Catalytic Reduction (SCR)**

Air pollutant(s) Controlled **NOx** Manufacturer **TBD**

Model No. **TBD** Serial No. **TBD** Installation date **TBD**

Control efficiency (%) **80.1%**

Efficiency estimation method **{[(uncontrolled NOx emission rate) - (controlled NOx emission rate)]/(uncontrolled NOx emission rate)}*(100%).**

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-02-ME-04** Description **Ice Breaker (2) Main Engine (4)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 42.2** MM BTU/hr Max. Design Heat Input **70.4** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**215,851 gal/yr**	**320 gal/hr**	**320,000 gal/yr**
*** The total operating time of the two Ice Breakers will not exceed 1,350 hours per year. Any one Ice Breaker Main Engine may run up to 1,000 hours per year.**			

E. Associated Air Pollution Control Equipment

Emissions unit ID **IB-02-ME-04** Device type **Selective Catalytic Reduction (SCR)**

Air pollutant(s) Controlled **NOx** Manufacturer **TBD**

Model No. **TBD** Serial No. **TBD** Installation date **TBD**

Control efficiency (%) **80.1%**

Efficiency estimation method **{[(uncontrolled NOx emission rate) - (controlled NOx emission rate)]/(uncontrolled NOx emission rate)}*(100%).**

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-02-HG-01** Description **Ice Breaker (2) Harbor Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 6.7** MM BTU/hr Max. Design Heat Input **6.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**404 gal/yr**	**50 gal/hr**	**404 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-02-EG-01** Description **Ice Breaker (2) Emergency Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Emergency backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 2.8** MM BTU/hr Max. Design Heat Input **2.8** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**171 gal/yr**	**21 gal/hr**	**171 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-02-BO-01** Description **Ice Breaker (2) Boiler (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Steam and/or Hot Water** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Commercial boiler**

Boiler horsepower rating **100** Boiler steam flow (lb/hr) **3450**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<3.7** MM BTU/hr Max. Design Heat Input **3.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**18,900 gal/yr**	**28 gal/hr**	**18,900 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-02-BO-02** Description **Ice Breaker (2) Boiler (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Steam and/or Hot Water** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Commercial boiler**

Boiler horsepower rating **100** Boiler steam flow (lb/hr) **3450**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<3.7** MM BTU/hr Max. Design Heat Input **3.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**18,900 gal/yr**	**28 gal/hr**	**18,900 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **IB-02-NC-01** Description **Ice Breaker (2) Incinerator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Waste Incineration** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Incinerator**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 1.1** MM BTU/hr Max. Design Heat Input **1.1** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Waste**

Standby fuel type(s) **Ultra Low Sulfur Diesel (ULSD) for ignition only**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
Waste	**Negligible**	**Unknown**	**6203 BTU/lb**
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
Waste	**118,125 lb/yr**	**175 lb/hr**	**118,125 lb/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-01-ME-01** Description **Oil Spill Response Vessel (1) Main Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 21.5** MM BTU/hr Max. Design Heat Input **21.5** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**66,960 gal/yr**	**77.5 gal/hr**	**66,960 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-01-ME-02** Description **Oil Spill Response Vessel (1) Main Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 21.5** MM BTU/hr Max. Design Heat Input **21.5** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**66,960 gal/yr**	**77.5 gal/hr**	**66,960 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-01-TE-01** Description **Oil Spill Response Vessel (1) Thruster Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 7.7** MM BTU/hr Max. Design Heat Input **7.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**418 gal/yr**	**11.6 gal/hr**	**418 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-01-TE-02** Description **Oil Spill Response Vessel (1) Thruster Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 7.7** MM BTU/hr Max. Design Heat Input **7.7** MM BTU/hr
.

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**382 gal/yr**	**10.6 gal/hr**	**382 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-01-TE-03** Description **Oil Spill Response Vessel (1) Thruster Engine (3)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 7.7** MM BTU/hr Max. Design Heat Input **7.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**256 gal/yr**	**7.1 gal/hr**	**256 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-01-GE-01** Description **Oil Spill Response Vessel (1) Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<6.7** MM BTU/hr Max. Design Heat Input **6.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**13,848 gal/yr**	**11.5 gal/hr**	**13,848 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-01-GE-02** Description **Oil Spill Response Vessel (1) Generator (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<6.7** MM BTU/hr Max. Design Heat Input **6.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**13,848 gal/yr**	**11.5 gal/hr**	**13,848 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-01-EG-01** Description **Oil Spill Response Vessel (1) Emergency Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Emergency backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<2.0** MM BTU/hr Max. Design Heat Input **2.0** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**118 gal/yr**	**15 gal/hr**	**118 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-02-ME-01** Description **Oil Spill Response Vessel (2) Main Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 21.5** MM BTU/hr Max. Design Heat Input **21.5** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**4,650 gal/yr**	**77.5 gal/hr**	**4,650 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-02-ME-02** Description **Oil Spill Response Vessel (2) Main Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 21.5** MM BTU/hr Max. Design Heat Input **21.5** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**4,650 gal/yr**	**77.5 gal/hr**	**4,650 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-02-TE-01** Description **Oil Spill Response Vessel (2) Thruster Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<7.7** MM BTU/hr Max. Design Heat Input **7.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**0 gal/yr**	**0 gal/hr**	**0 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-02-TE-02** Description **Oil Spill Response Vessel (2) Thruster Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<7.7** MM BTU/hr Max. Design Heat Input **7.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**0 gal/yr**	**0 gal/hr**	**0 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-02-TE-03** Description **Oil Spill Response Vessel (2) Thruster Engine (3)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **,7.7** MM BTU/hr Max. Design Heat Input **7.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**0 gal/yr**	**0 gal/hr**	**0 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-02-GE-01** Description **Oil Spill Response Vessel (2) Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 6.7** MM BTU/hr Max. Design Heat Input **6.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**346 gal/yr**	**11.54 gal/hr**	**346 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-02-GE-02** Description **Oil Spill Response Vessel (2) Generator (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 6.7** MM BTU/hr Max. Design Heat Input **6.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**346 gal/yr**	**11.54 gal/hr**	**346 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SR-02-EG-01** Description **Oil Spill Response Vessel (2) Emergency Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Emergency backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 2.0** MM BTU/hr Max. Design Heat Input **2.0** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**118 gal/yr**	**15 gal/hr**	**118 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **AT-01-ME-01** Description **Anchor Handling Tug Supply (1) Main Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 25.4** MM BTU/hr Max. Design Heat Input **25.4** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD – Cruising	**8 gal/yr**	**99 gal/hr**	**8 gal/yr**
ULSD – Mooring Assist	**639 gal/yr**	**71 gal/hr**	**639 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **AT-01-ME-02** Description **Anchor Handling Tug Supply (1) Main Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 25.4** MM BTU/hr Max. Design Heat Input **25.4** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD – Cruising	**8 gal/yr**	**99 gal/hr**	**8 gal/yr**
ULSD – Mooring Assist	**639 gal/yr**	**71 gal/hr**	**639 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **AT-01-TE-01** Description **Anchor Handling Tug Supply (1) Thruster Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 7.0** MM BTU/hr Max. Design Heat Input **7.0** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**240 gal/yr**	**27 gal/hr**	**240 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **AT-01-TE-02** Description **Anchor Handling Tug Supply (1) Thruster Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 7.0** MM BTU/hr Max. Design Heat Input **7.0** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**240 gal/yr**	**27 gal/hr**	**240 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **AT-01-TW-01** Description **Anchor Handling Tug Supply (1) Tow Winch Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Towing** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input <**7.0** MM BTU/hr Max. Design Heat Input **7.0** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**96 gal/yr**	**11 gal/hr**	**96 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **AT-01-GE-01** Description **Anchor Handling Tug Supply (1) Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 4.7** MM BTU/hr Max. Design Heat Input **4.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD- Anchored/Cruising	**21,240 gal/yr**	**18 gal/hr**	**21,240 gal/yr**
ULSD-Mooring Assist	**192 gal/yr**	**21 gal/hr**	**192 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **AT-01-GE-02** Description **Anchor Handling Tug Supply (1) Generator (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 4.7** MM BTU/hr Max. Design Heat Input **4.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**12,744 gal/yr**	**11 gal/hr**	**12,744 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **AT-01-EG-01** Description **Anchor Handling Tug Supply (1) Emergency Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Emergency backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 1.9** MM BTU/hr Max. Design Heat Input **1.9** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**157 gal/yr**	**20 gal/hr**	**157 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **AT-02-ME-01** Description **Anchor Handling Tug Supply (2) Main Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 25.4** MM BTU/hr Max. Design Heat Input **25.4** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD – Cruising	**37,592 gal/yr**	**99 gal/hr**	**37,592 gal/yr**
ULSD – DP	**85,569 gal/yr**	**96 gal/hr**	**85,569 gal/yr**
***Based on OSV Hours of Operation**			

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **AT-02-ME-02** Description **Anchor Handling Tug Supply (2) Main Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 25.4** MM BTU/hr Max. Design Heat Input **25.4** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD – Cruising	**37,592 gal/yr**	**99 gal/hr**	**37,592 gal/yr**
ULSD – DP	**85,569 gal/yr**	**96 gal/hr**	**85,569 gal/yr**
***Based of OSV hours of operation**			

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **AT-02-TE-01** Description **Anchor Handling Tug Supply (2) Thruster Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 7.0** MM BTU/hr Max. Design Heat Input **7.0** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**23,681 gal/yr**	**27 gal/hr**	**23,681 gal/yr**
***Based on OSV hours of operation**			

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **AT-02-TE-02** Description **Anchor Handling Tug Supply (2) Thruster Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 7.0** MM BTU/hr Max. Design Heat Input **7.0** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**23,681 gal/yr**	**27 gal/hr**	**23,681 gal/yr**
***Based on OSV hours of operation**			

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **AT-02-TW-01** Description **Anchor Handling Tug Supply (2) Tow Winch Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Towing** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<7.0** MM BTU/hr Max. Design Heat Input **7.0** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**0 gal/yr**	**0 gal/hr**	**0 gal/yr**
***Based on OSV hours of operation**			

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **AT-02-GE-01** Description **Anchor Handling Tug Supply (2) Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 4.7** MM BTU/hr Max. Design Heat Input **4.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD-DP	**22,103 gal/yr**	**25 gal/hr**	**22,103 gal/yr**
ULSD-Cruising	**6,713 gal/yr**	**18 gal/hr**	**6,713 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **AT-02-GE-02** Description **Anchor Handling Tug Supply (2) Generator (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 4.7** MM BTU/hr Max. Design Heat Input **4.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**22,103 gal/yr**	**25 gal/hr**	**22,103 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **AT-02-EG-01** Description **Anchor Handling Tug Supply (2) Emergency Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Emergency backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 1.9** MM BTU/hr Max. Design Heat Input **1.9** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**117 gal/yr**	**15 gal/hr**	**117 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-01-ME-01** Description **Offshore Supply Vessel (1) Main Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 9.8** MM BTU/hr Max. Design Heat Input **9.8** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD – Cruising	**28,161 gal/yr**	**75 gal/hr**	**28,161 gal/yr**
ULSD – Idling	**8,911 gal/yr**	**67 gal/hr**	**8,911 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-01-ME-02** Description **Offshore Supply Vessel (1) Main Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 9.8** MM BTU/hr Max. Design Heat Input **9.8** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD – Cruising	**28,161 gal/yr**	**75 gal/hr**	**28,161 gal/yr**
ULSD – Idling	**8,911 gal/yr**	**67 gal/hr**	**8,911 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-01-TE-01** Description **Offshore Supply Vessel (1) Thruster Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 5.9** MM BTU/hr Max. Design Heat Input **5.9** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**34,020 gal/yr**	**45 gal/hr**	**34,020 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-01-TE-02** Description **Offshore Supply Vessel (1) Thruster Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 5.9** MM BTU/hr Max. Design Heat Input **5.9** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**34,020 gal/yr**	**45 gal/hr**	**34,020 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-01-TE-03** Description **Offshore Supply Vessel (1) Thruster Engine (3)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 5.9** MM BTU/hr Max. Design Heat Input **5.9** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**34,020 gal/yr**	**45 gal/hr**	**34,020 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-01-GE-01** Description **Offshore Supply Vessel (1) Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 3.6** MM BTU/hr Max. Design Heat Input **3.6** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**17,105 gal/yr**	**27 gal/hr**	**17,105 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-01-GE-02** Description **Offshore Supply Vessel (1) Generator (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 3.6** MM BTU/hr Max. Design Heat Input **3.6** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**17,105 gal/yr**	**27 gal/hr**	**17,105 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-01-GE-03** Description **Offshore Supply Vessel (1) Generator (3)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 3.6** MM BTU/hr Max. Design Heat Input **3.6** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**0 gal/yr**	**27 gal/hr**	**0 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-01-EG-01** Description **Offshore Supply Vessel (1) Emergency Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Emergency backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 1.1** MM BTU/hr Max. Design Heat Input **1.1** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**64 gal/yr**	**8 gal/hr**	**64 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-02-ME-01** Description **Offshore Supply Vessel (2) Main Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 9.8** MM BTU/hr Max. Design Heat Input **9.8** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD – Cruising	**28,161 gal/yr**	**75 gal/hr**	**28,350 gal/yr**
ULSD – Idling	**8,911 gal/yr**	**67 gal/hr**	**8.911 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-02-ME-02** Description **Offshore Supply Vessel (2) Main Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 9.8** MM BTU/hr Max. Design Heat Input **9.8** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD – Cruising	**28,161 gal/yr**	**75 gal/hr**	**28,161 gal/yr**
ULSD – Idling	**8,911 gal/yr**	**67 gal/hr**	**8,911 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-02-TE-01** Description **Offshore Supply Vessel (2) Thruster Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<5.9** MM BTU/hr Max. Design Heat Input **5.9** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**34,020 gal/yr**	**45 gal/hr**	**34,020 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-02-TE-02** Description **Offshore Supply Vessel (2) Thruster Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 5.9** MM BTU/hr Max. Design Heat Input **5.9** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**34,020 gal/yr**	**45 gal/hr**	**34,020 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-02-TE-03** Description **Offshore Supply Vessel (2) Thruster Engine (3)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Maneuvering** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 5.9** MM BTU/hr Max. Design Heat Input **5.9** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**34,020 gal/yr**	**45 gal/hr**	**34,020 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-02-GE-01** Description **Offshore Supply Vessel (2) Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 3.6** MM BTU/hr Max. Design Heat Input **3.6** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**17,105 gal/yr**	**27 gal/hr**	**17,105 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-02-GE-02** Description **Offshore Supply Vessel (2) Generator (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 3.6** MM BTU/hr Max. Design Heat Input **3.6** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**17,105 gal/yr**	**27 gal/hr**	**17,105 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-02-GE-03** Description **Offshore Supply Vessel (2) Generator (3)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 3.6** MM BTU/hr Max. Design Heat Input **3.6** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**0 gal/yr**	**27 gal/hr**	**0 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **SV-02-EG-01** Description **Offshore Supply Vessel (2) Emergency Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Emergency backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 1.1** MM BTU/hr Max. Design Heat Input **1.1** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**64 gal/yr**	**8 gal/hr**	**64 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WV-01-ME-01** Description **Ware Vessel (1) Main Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 11.5** MM BTU/hr Max. Design Heat Input **11.5** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**31,320 gal/yr**	**87 gal/hr**	**31,320 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%)NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WV-01-ME-02** Description **Ware Vessel (1) Main Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 11.5** MM BTU/hr Max. Design Heat Input **11.5** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**31,320 gal/yr**	**87 gal/hr**	**31,320 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%)NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WV-01-ME-03** Description **Ware Vessel (1) Main Engine (3)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 10.7** MM BTU/hr Max. Design Heat Input **10.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**66,420 gal/yr**	**81 gal/hr**	**66,420 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%)NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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Federal Operating Permit Program (40 CFR Part 71)

EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WV-01-ME-04** Description **Ware Vessel (1) Main Engine (4)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 10.7** MM BTU/hr Max. Design Heat Input **10.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**66,420 gal/yr**	**81 gal/hr**	**66,420 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%)NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WV-01-GE-01** Description **Ware Vessel (1) Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 4.2** MM BTU/hr Max. Design Heat Input **4.2** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**18,880 gal/yr**	**32 gal/hr**	**18,880 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WV-01-GE-02** Description **Ware Vessel (1) Generator (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 4.2** MM BTU/hr Max. Design Heat Input **4.2** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**18,880 gal/yr**	**32 gal/hr**	**18,880 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WV-01-GE-03** Description **Ware Vessel (1) Generator (3)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 4.2** MM BTU/hr Max. Design Heat Input **4.2** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**0 gal/yr**	**32 gal/hr**	**0 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WV-01-EG-01** Description **Ware Vessel (1) Emergency Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Emergency backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 1.7** MM BTU/hr Max. Design Heat Input **1.7** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**102 gal/yr**	**12.8 gal/hr**	**102 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WB-01-PE-01** Description **Work Boat (1) Propulsion Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 2.0** MM BTU/hr Max. Design Heat Input **2.0** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**725 gal/yr**	**15 gal/hr**	**725 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%)NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WB-01-PE-02** Description **Work Boat (1) Propulsion Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 2.0** MM BTU/hr Max. Design Heat Input **2.0** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**725 gal/yr**	**15 gal/hr**	**725 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%)NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WB-02-PE-01** Description **Work Boat (2) Propulsion Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 2.0** MM BTU/hr Max. Design Heat Input **2.0** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**725 gal/yr**	**15 gal/hr**	**725 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%)NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WB-02-PE-02** Description **Work Boat (2) Propulsion Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 2.0** MM BTU/hr Max. Design Heat Input **2.0** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**725 gal/yr**	**15 gal/hr**	**725 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%)NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WB-03-PE-01** Description **Work Boat (3) Propulsion Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 2.0** MM BTU/hr Max. Design Heat Input **2.0** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**725 gal/yr**	**15 gal/hr**	**725 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%)NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WB-03-PE-02** Description **Work Boat (3) Propulsion Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 2.0** MM BTU/hr Max. Design Heat Input **2.0** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**725 gal/yr**	**15 gal/hr**	**725 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%)NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WB-04-PE-01** Description **Work Boat (4) Propulsion Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 2.0** MM BTU/hr Max. Design Heat Input **2.0** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**725 gal/yr**	**15 gal/hr**	**725 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%)NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **WB-04-PE-02** Description **Work Boat (4) Propulsion Engine (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 2.0** MM BTU/hr Max. Design Heat Input **2.0** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**725 gal/yr**	**15 gal/hr**	**725 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%)NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **MR-01-ME-01** Description **Marine Research Vessel (1) Main Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 6.0** MM BTU/hr Max. Design Heat Input **6.0** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**27,026 gal/yr**	**45 gal/hr**	**27,026 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **MR-01-GE-01** Description **Marine Research Vessel (1) Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 1.3** MM BTU/hr Max. Design Heat Input **1.3** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**5,754 gal/yr**	**10 gal/hr**	**5,754 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **MR-01-GE-02** Description **Marine Research Vessel (1) Generator (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 0.8** MM BTU/hr Max. Design Heat Input **0.8** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**3,836 gal/yr**	**6 gal/hr**	**3,836 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **MR-01-GE-03** Description **Marine Research Vessel (1) Generator (3)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 0.4** MM BTU/hr Max. Design Heat Input **0.4** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**1,705 gal/yr**	**3 gal/hr**	**1,705 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **ST-01-ME-01** Description **Spill Storage Tanker (1) Main Engine (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Propulsion** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 136.2** MM BTU/hr Max. Design Heat Input **136.2** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**4,867 gal/yr**	**1,031 gal/hr**	**4,867 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **ST-01-GE-01** Description **Spill Storage Tanker (1) Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 5.6** MM BTU/hr Max. Design Heat Input **5.6** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**1,236 gal/yr**	**43 gal/hr**	**1,236 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **ST-01-GE-02** Description **Spill Storage Tanker (1) Generator (2)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **< 5.6** MM BTU/hr Max. Design Heat Input **5.6** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**1,236 gal/yr**	**43 gal/hr**	**1,236 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **ST-01-GE-03** Description **Spill Storage Tanker (1) Generator (3)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Primary and/or backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<5.6** MM BTU/hr Max. Design Heat Input **5.6** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**0 gal/yr**	**0 gal/hr**	**0 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

United States Environmental Protection Agency

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **ST-01-EG-01** Description **Spill Storage Tanker (1) Emergency Generator (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Emergency backup vessel power/electricity** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Internal Combustion Engine**

Boiler horsepower rating **NA** Boiler steam flow (lb/hr) **NA**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<3.3** MM BTU/hr Max. Design Heat Input **3.3** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**0 gal/yr**	**0 gal/hr**	**0 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **ST-01-BO-01** Description **Spill Storage Tanker (1) Boiler (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Steam and/or Hot Water** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Commercial boiler**

Boiler horsepower rating **100** Boiler steam flow (lb/hr) **3450**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input **<212** MM BTU/hr Max. Design Heat Input **212** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**84,422 gal/yr**	**1,601 gal/hr**	**84,422 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

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EMISSION UNIT DESCRIPTION FOR FUEL COMBUSTION SOURCES (EUD-1)

A. General Information

Emissions unit ID **ST-01-BO-02** Description **Spill Storage Tanker (1) Boiler (1)**

SIC Code (4-digit) **1311** SCC Code **2280002010**

B. Emissions Unit Description

Primary use **Steam and/or Hot Water** Temporary Source ___Yes **X** No

Manufacturer **TBD** Model No. **TBD**

Serial Number **TBD** Installation Date **TBD**

Boiler Type: ___ Industrial boiler ___ Process burner ___ Electric utility boiler

Other (describe) **Commercial boiler**

Boiler horsepower rating **100** Boiler steam flow (lb/hr) **3450**

Type of Fuel-Burning Equipment (coal burning only): **NA**

___ Hand fired ___Spreader stoker ___Underfeed stoker ___Overfeed stoker

___ Traveling grate ___Shaking grate ___Pulverized, wet bed ___ Pulverized, dry bed

Actual Heat Input <**212** MM BTU/hr Max. Design Heat Input **212** MM BTU/hr

C. Fuel Data

Primary fuel type(s) **Ultra Low Sulfur Diesel (ULSD)** Standby fuel type(s) **NA**

Describe each fuel you expected to use during the term of the permit.

Fuel Type	Max. Sulfur Content (%)	Max. Ash Content (%)	BTU Value (cf, gal., or lb.)
ULSD	**0.0015**	**0.01**	**132,096 BTU/gallon**

D. Fuel Usage Rates

Fuel Type	**(Projected)** Annual Actual Usage	Maximum Usage Hourly	Maximum Usage Annual
ULSD	**0 gal/yr**	**0 gal/hr**	**0 gal/yr**

E. Associated Air Pollution Control Equipment

Emissions unit ID **NA** Device type **NA**

Air pollutant(s) Controlled **NA** Manufacturer **NA**

Model No. NA Serial No. NA

Installation date NA Control efficiency (%) NA

Efficiency estimation method NA

F. Ambient Impact Assessment

This information must be completed by temporary sources or when ambient impact assessment is an applicable requirement for this emissions unit (this is not common).

See accompanying Air Quality Impact Analysis

Stack height (ft) ___ Inside stack diameter (ft) ___ Stack temp (^{o}F) ___

Design stack flow rate (ACFM) ___

Actual stack flow rate (ACFM) ___ Velocity (ft/sec) ___

Section 4
Insignificant Emissions (IE)

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 04/30/2012

Federal Operating Permit Program (40 CFR Part 71)

INSIGNIFICANT EMISSIONS (IE)

List each insignificant activity or emission unit. In the "number" column, indicate the number of units in this category. Descriptions should be brief but unique. Indicate which emissions criterion of part 71 is the basis for the exemption.

Number	Description of Activities or Emissions Units	RAP, except HAP	HAP
2	71,000 gallon drill rig fuel tank	X	X
15+	Vessel fuel tanks	X	X

Section 5
Potential to Emit (PTE)

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 04/30/2012

Federal Operating Permit Program (40 CFR Part 71)

POTENTIAL TO EMIT (PTE)

For each unit with emissions that count towards applicability, list the emissions unit ID and the PTE for the air pollutants listed below and sum them up to show totals for the facility. You may find it helpful to complete form **EMISS** before completing this form. Show other pollutants not listed that are present in major amounts at the facility on attachment in a similar fashion. You may round values to the nearest tenth of a ton. Also report facility totals in section **J** of form **GIS**.

Emissions Unit ID	Regulated Air Pollutants and Pollutants for which the Source is Major (tons/yr)						
	NOx	VOC	SO2	PM10	CO	Lead	HAP
See Appendix A Emissions Unit Inventories for individual emissions unit details							
Proposed Allowable Emissions Facility Totals for Option 1 (Ware Barge/Tug and 2 OSVs)	**223.6**	**28.3**	**0.6**	**13.8**	**181.7**	**0.03**	**3.08**
Proposed Allowable Emissions Facility Totals for Option 2 [Ware Vessel (w/ backup OSV and OSV/AHTS)]	**225.1**	**28.5**	**0.6**	**13.9**	**182.7**	**0.03**	**3.09**

HAP EMISSION FACTOR BASIS

Sources of diesel fuel HAP factors were researched and obtained from the following sources: AP-42; California Air Resources Board (CARB), California Air Toxics Emission Factors Database (CATEF); or Ventura County Air Pollution Control District (VCAPD), AB 2588 Combustion Emission Factors, May 17, 2001. In cases where factors were available from more than one of these agencies for the same pollutant, we used the following methods to select factors for use in our calculations:

As a top level HAP emission factor selection method, preference was given to AP-42 factors because AP-42 is generally acceptable and provides the most refined emission factors, based on engine size and fuel type. For diesel engines, AP-42 provides two sets of factors for diesel engines, based on engine size (less than 600 hp and greater than 600 hp). CARB and VACPD diesel emission factors do not differentiate between large and small engines. Factors from CARB were ranked as our second choice because CARB factors include multiple factor rating methods. The mean value was used for CARB emission factors. VCAPD factors were used in cases where no factor was available from AP-42 or CARB. VCAPD factors do not list any confidence or ranking information.

As a second level emission factory selection method, AP-42 factors were compared with CARB factors. AP-42 factors were used except in cases where the CARB factor was an order of magnitude larger than the AP-42 factor and had a rating equal to or better than the EPA factor rating. In these cases, CARB was used instead.

CALCULATIONS

Emission factors for polycyclic organic matter (POM) were calculated by adding the emission factors for individual HAPs, based on the following technical document: Guidance on the Major Source Determination for Certain Hazardous Air Pollutants (EPA-HQ-OAR-2007-0750-0001).

Emissions were calculated for each emissions unit and then sum totaled for each vessel and for the drill rig. Total source HAP emissions were calculated by adding the emissions from each vessel and the drill rig. See Emissions Unit Inventory for a list of emissions units, operational parameters and assumptions.

Unit conversion examples:

1. Max Fuel Usage (MFU) (lb/MMBtu) = MFU (lb/1,000 gal)/(132096 Btu/gal)*(1,000,000 Btu/MMBtu)
2. MFU (lb/10^12 Btu) = MFU (lb/1,000 gal)/(132096 Btu/gal)*(10^12 Btu)

Examples of Potential to Emit (PTE) calculations:

1. PTE (lb/hr) = Emission Factor (EF) (lb/MMBtu)*MOC (kW)*MFU (g/kW-h)/(454 g/lb)/(6.74 lb/gal)/(1,000,000 Btu/MMBtu)*(132096 Btu/gal)
2. PTE (lb/hr) = EF (lb/MMBtu)*MFU (gal/hr)*(132096 Btu/gal)/(1,000,000 Btu/MMBtu)
3. PTE (lb/hr) = EF (lb/MMBtu)*Max Output (HP) *(7000Btu/hp-hr)*(MMBtu/1,000,000 Btu)
4. PTE (lb/hr) = EF (lb/MMBtu)*Max Output (kW) * (1.3405HP/kW)*(7000Btu/hp-hr)*(MMBtu/1,000,000 Btu)
5. PTE (lb/hr) = EF (lb/10^12 Btu)*MOC (MMBtu/hr)/(1,000,000 Btu/MMBtu)
6. PTE (lb/hr) = EF (lb/MMscf)*MOC (MMscf/yr)/Allowable Operation (hr/yr)
7. PTE (tpy) = EF (lb/MMscf)*MOC (MMscf/yr)/(2,000 lb/ton)
8. PTE (lb/hr) = EF (lb/1,000 gal)*MFU (gal/hr)/(1,000)
9. PTE (lb/hr) = EF (lb/ton)*MFU (lb/hr)/(2,000 lb/ton)
10. PTE (tpy) = PTE (lb/hr)*Allowable Operation (hr/yr)/(2,000lb/ton)

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	DR-01-FT-01&DR-01-FT-02
City:	Chukchi Sea
State:	Alaska
Company:	ConocoPhillips
Type of Tank:	Horizontal Tank
Description:	DRILL RIG FUEL TANKS PROPOSED ALLOWABLE EMISSIONS

Tank Dimensions

Shell Length (ft):		56.50
Diameter (ft):		20.00
Volume (gallons):		71,000.00
Turnovers:		6.67
Net Throughput(gal/yr):		473,575.00
Is Tank Heated (y/n):	N	
Is Tank Underground (y/n):	N	

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Barrow, Alaska (Avg Atmospheric Pressure = 14.73 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

DR-01-FT-01&DR-01-FT-02 - Horizontal Tank
Chukchi Sea, Alaska

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Distillate fuel oil no. 2	Jul	24.48	20.74	28.21	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0043	0.0036	0.0051	120.1900	0.0100	0.0200	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.3986	0.3519	0.4504	78.1100	0.0000	0.0015	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0280	0.0240	0.0327	106.1700	0.0001	0.0017	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.6989	0.6221	0.7835	86.1700	0.0000	0.0003	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0987	0.0858	0.1132	92.1300	0.0003	0.0147	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0029	0.0028	0.0029	132.3072	0.9866	0.9305	189.60	
Xylene (-m)						0.0231	0.0197	0.0269	106.1700	0.0029	0.0312	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Aug	23.03	20.42	25.65	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0040	0.0035	0.0045	120.1900	0.0100	0.0187	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.3800	0.3482	0.4142	78.1100	0.0000	0.0014	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0264	0.0236	0.0294	106.1700	0.0001	0.0016	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.6684	0.6159	0.7246	86.1700	0.0000	0.0003	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0935	0.0848	0.1030	92.1300	0.0003	0.0140	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0029	0.0028	0.0029	132.1651	0.9866	0.9347	189.60	
Xylene (-m)						0.0217	0.0194	0.0242	106.1700	0.0029	0.0294	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Sep	19.23	17.50	20.96	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0033	0.0030	0.0036	120.1900	0.0100	0.0155	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.3344	0.3153	0.3545	78.1100	0.0000	0.0012	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0225	0.0208	0.0242	106.1700	0.0001	0.0014	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.5931	0.5613	0.6264	86.1700	0.0000	0.0003	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0810	0.0758	0.0865	92.1300	0.0003	0.0121	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0030	0.0029	0.0029	131.8297	0.9866	0.9446	189.60	
Xylene (-m)						0.0184	0.0171	0.0199	106.1700	0.0029	0.0249	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Oct	11.41	9.55	13.26	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0022	0.0020	0.0025	120.1900	0.0100	0.0104	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.2551	0.2388	0.2722	78.1100	0.0000	0.0010	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0159	0.0147	0.0173	106.1700	0.0001	0.0010	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.4604	0.4329	0.4893	86.1700	0.0000	0.0002	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0597	0.0555	0.0643	92.1300	0.0003	0.0089	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0030	0.0030	0.0030	131.2896	0.9866	0.9609	189.60	
Xylene (-m)						0.0131	0.0120	0.0142	106.1700	0.0029	0.0177	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

DR-01-FT-01&DR-01-FT-02 - Horizontal Tank
Chukchi Sea, Alaska

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):							0.7268	0.4780	0.2753	0.3256		
Vapor Space Volume (cu ft):							11,305.7315	11,305.7315	11,305.7315	11,305.7315		
Vapor Density (lb/cu ft):							0.0001	0.0001	0.0001	0.0001		
Vapor Space Expansion Factor:							0.0268	0.0176	0.0104	0.0117		
Vented Vapor Saturation Factor:							0.9984	0.9984	0.9984	0.9984		
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):							11,305.7315	11,305.7315	11,305.7315	11,305.7315		
Tank Diameter (ft):							20.0000	20.0000	20.0000	20.0000		
Effective Diameter (ft):							37.9406	37.9406	37.9406	37.9406		
Vapor Space Outage (ft):							10.0000	10.0000	10.0000	10.0000		
Tank Shell Length (ft):							56.5000	56.5000	56.5000	56.5000		
Vapor Density												
Vapor Density (lb/cu ft):							0.0001	0.0001	0.0001	0.0001		
Vapor Molecular Weight (lb/lb-mole):							130.0000	130.0000	130.0000	130.0000		
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031		
Daily Avg. Liquid Surface Temp. (deg. R):							484.1452	482.7046	478.9006	471.0762		
Daily Average Ambient Temp. (deg. F):							39.3000	37.8000	30.4000	13.4500		
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):							10.731	10.731	10.731	10.731		
Liquid Bulk Temperature (deg. R):							469.1067	469.1067	469.1067	469.1067		
Tank Paint Solar Absorptance (Shell):							0.1700	0.1700	0.1700	0.1700		
Daily Total Solar Insulation Factor (Btu/sqft day):							1,413.7551	832.5165	424.5073	151.6551		
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:							0.0268	0.0176	0.0104	0.0117		
Daily Vapor Temperature Range (deg. R):							14.9375	10.4428	6.9167	7.4179		
Daily Vapor Pressure Range (psia):							0.0000	0.0000	0.0000	0.0000		
Breather Vent Press. Setting Range(psia):							0.0600	0.0600	0.0600	0.0600		
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031		
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031		
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031		
Daily Avg. Liquid Surface Temp. (deg R):							484.1452	482.7046	478.9006	471.0762		
Daily Min. Liquid Surface Temp. (deg R):							480.4108	480.0939	477.1715	469.2217		
Daily Max. Liquid Surface Temp. (deg R):							487.8796	485.3153	480.6298	472.9307		
Daily Ambient Temp. Range (deg. R):							11.4000	9.0000	6.8000	9.3000		
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:							0.9984	0.9984	0.9984	0.9984		
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031		
Vapor Space Outage (ft):							10.0000	10.0000	10.0000	10.0000		
Working Losses (lb):							1.1360	1.1360	1.1360	1.1360		
Vapor Molecular Weight (lb/lb-mole):							130.0000	130.0000	130.0000	130.0000		
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031		
Net Throughput (gal/mo.):							118,393.7500	118,393.7500	118,393.7500	118,393.7500		

Annual Turnovers:	6.6701	6.6701	6.6701	6.6701
Turnover Factor:	1.0000	1.0000	1.0000	1.0000
Tank Diameter (ft):	20.0000	20.0000	20.0000	20.0000
Working Loss Product Factor:	1.0000	1.0000	1.0000	1.0000
Total Losses (lb):	1.8629	1.6141	1.4114	1.4616

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

DR-01-FT-01&DR-01-FT-02 - Horizontal Tank
Chukchi Sea, Alaska

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	4.54	1.81	6.35
1,2,4-Trimethylbenzene	0.07	0.03	0.10
	0.01	0.00	0.01
Benzene	0.01	0.00	0.01
Ethylbenzene Hexane (-n)	0.00	0.00	0.00
Toluene	0.06	0.02	0.08
Unidentified Components	4.28	1.70	5.98
Xylene (-m)	0.12	0.05	0.17

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	VE-01 - FT-01
City:	Chukchi Sea
State:	Alaska
Company:	ConocoPhillips
Type of Tank:	Horizontal Tank
Description:	ALL VESSEL FUEL TANKS PROPOSED ALLOWABLE EMISSIONS

Tank Dimensions

Shell Length (ft):	56.50
Diameter (ft):	20.00
Volume (gallons):	100,000.00
Turnovers:	28.80
Net Throughput(gal/yr):	2,880,158.00
Is Tank Heated (y/n):	N
Is Tank Underground (y/n):	N

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.03

Meterological Data used in Emissions Calculations: Barrow, Alaska (Avg Atmospheric Pressure = 14.73 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

VE-01 - FT-01 - Horizontal Tank
Chukchi Sea, Alaska

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Distillate fuel oil no. 2	Jul	24.48	20.74	28.21	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0043	0.0036	0.0051	120.1900	0.0100	0.0200	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.3986	0.3519	0.4504	78.1100	0.0000	0.0015	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0280	0.0240	0.0327	106.1700	0.0001	0.0017	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.6989	0.6221	0.7835	86.1700	0.0000	0.0003	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0987	0.0858	0.1132	92.1300	0.0003	0.0147	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0029	0.0028	0.0029	132.3072	0.9866	0.9305	189.60	
Xylene (-m)						0.0231	0.0197	0.0269	106.1700	0.0029	0.0312	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Aug	23.03	20.42	25.65	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0040	0.0035	0.0045	120.1900	0.0100	0.0187	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.3800	0.3482	0.4142	78.1100	0.0000	0.0014	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0264	0.0236	0.0294	106.1700	0.0001	0.0016	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.6684	0.6159	0.7246	86.1700	0.0000	0.0003	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0935	0.0848	0.1030	92.1300	0.0003	0.0140	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0029	0.0028	0.0029	132.1651	0.9866	0.9347	189.60	
Xylene (-m)						0.0217	0.0194	0.0242	106.1700	0.0029	0.0294	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Sep	19.23	17.50	20.96	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0033	0.0030	0.0036	120.1900	0.0100	0.0155	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.3344	0.3153	0.3545	78.1100	0.0000	0.0012	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0225	0.0208	0.0242	106.1700	0.0001	0.0014	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.5931	0.5613	0.6264	86.1700	0.0000	0.0003	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0810	0.0758	0.0865	92.1300	0.0003	0.0121	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0030	0.0029	0.0029	131.8297	0.9866	0.9446	189.60	
Xylene (-m)						0.0184	0.0171	0.0199	106.1700	0.0029	0.0249	106.17	Option 2: A=7.009, B=1462.266, C=215.11
Distillate fuel oil no. 2	Oct	11.41	9.55	13.26	9.44	0.0031	0.0031	0.0031	130.0000			188.00	Option 1: VP40 = .0031
1,2,4-Trimethylbenzene						0.0022	0.0020	0.0025	120.1900	0.0100	0.0104	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.2551	0.2388	0.2722	78.1100	0.0000	0.0010	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0159	0.0147	0.0173	106.1700	0.0001	0.0010	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						0.4604	0.4329	0.4893	86.1700	0.0000	0.0002	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.0597	0.0555	0.0643	92.1300	0.0003	0.0089	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0030	0.0030	0.0030	131.2896	0.9866	0.9609	189.60	
Xylene (-m)						0.0131	0.0120	0.0142	106.1700	0.0029	0.0177	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

VE-01 - FT-01 - Horizontal Tank
Chukchi Sea, Alaska

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):							0.7268	0.4780	0.2753	0.3256		
Vapor Space Volume (cu ft):							11,305.7315	11,305.7315	11,305.7315	11,305.7315		
Vapor Density (lb/cu ft):							0.0001	0.0001	0.0001	0.0001		
Vapor Space Expansion Factor:							0.0268	0.0176	0.0104	0.0117		
Vented Vapor Saturation Factor:							0.9984	0.9984	0.9984	0.9984		
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):							11,305.7315	11,305.7315	11,305.7315	11,305.7315		
Tank Diameter (ft):							20.0000	20.0000	20.0000	20.0000		
Effective Diameter (ft):							37.9406	37.9406	37.9406	37.9406		
Vapor Space Outage (ft):							10.0000	10.0000	10.0000	10.0000		
Tank Shell Length (ft):							56.5000	56.5000	56.5000	56.5000		
Vapor Density												
Vapor Density (lb/cu ft):							0.0001	0.0001	0.0001	0.0001		
Vapor Molecular Weight (lb/lb-mole):							130.0000	130.0000	130.0000	130.0000		
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031		
Daily Avg. Liquid Surface Temp. (deg. R):							484.1452	482.7046	478.9006	471.0762		
Daily Average Ambient Temp. (deg. F):							39.3000	37.8000	30.4000	13.4500		
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):							10.731	10.731	10.731	10.731		
Liquid Bulk Temperature (deg. R):							469.1067	469.1067	469.1067	469.1067		
Tank Paint Solar Absorptance (Shell):							0.1700	0.1700	0.1700	0.1700		
Daily Total Solar Insulation Factor (Btu/sqft day):							1,413.7551	832.5165	424.5073	151.6551		
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:							0.0268	0.0176	0.0104	0.0117		
Daily Vapor Temperature Range (deg. R):							14.9375	10.4428	6.9167	7.4179		
Daily Vapor Pressure Range (psia):							0.0000	0.0000	0.0000	0.0000		
Breather Vent Press. Setting Range(psia):							0.0600	0.0600	0.0600	0.0600		
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031		
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031		
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031		
Daily Avg. Liquid Surface Temp. (deg R):							484.1452	482.7046	478.9006	471.0762		
Daily Min. Liquid Surface Temp. (deg R):							480.4108	480.0939	477.1715	469.2217		
Daily Max. Liquid Surface Temp. (deg R):							487.8796	485.3153	480.6298	472.9307		
Daily Ambient Temp. Range (deg. R):							11.4000	9.0000	6.8000	9.3000		
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:							0.9984	0.9984	0.9984	0.9984		
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031		
Vapor Space Outage (ft):							10.0000	10.0000	10.0000	10.0000		
Working Losses (lb):							6.9090	6.9090	6.9090	6.9090		
Vapor Molecular Weight (lb/lb-mole):							130.0000	130.0000	130.0000	130.0000		
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):							0.0031	0.0031	0.0031	0.0031		
Net Throughput (gal/mo.):							720,039.5000	720,039.5000	720,039.5000	720,039.5000		

Annual Turnovers:	28.8016	28.8016	28.8016	28.8016
Turnover Factor:	1.0000	1.0000	1.0000	1.0000
Tank Diameter (ft):	20.0000	20.0000	20.0000	20.0000
Working Loss Product Factor:	1.0000	1.0000	1.0000	1.0000
Total Losses (lb):	7.6358	7.3870	7.1843	7.2346

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

VE-01 - FT-01 - Horizontal Tank
Chukchi Sea, Alaska

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	27.64	1.81	29.44
1,2,4-Trimethylbenzene	0.45	0.03	0.48
	0.04	0.00	0.04
Benzene	0.04	0.00	0.04
Ethylbenzene Hexane (-n)	0.01	0.00	0.01
Toluene	0.34	0.02	0.37
Unidentified Components	26.05	1.70	27.75
Xylene (-m)	0.71	0.05	0.76

Section 6
Emission Calculations (EMISS)

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 04/30/2012

Federal Operating Permit Program (40 CFR Part 71)

EMISSION CALCULATIONS (EMISS)

Calculate potential to emit (PTE) for applicability purposes and actual emissions for fee purposes for each emissions unit, control device, or alternative operating scenario identified in section I of form **GIS**. If form **FEE** does not need to be submitted with the application, do not calculate actual emissions.

A. Emissions Unit ID **See Appendix A. Emissions Inventories**

B. Identification and Quantification of Emissions

First, list each air pollutant that is either regulated at the unit or present in major amounts, then list any other regulated pollutant (for fee calculation) not already listed. HAP may be simply listed as "HAP." Next, calculate PTE for applicability purposes and actual emissions for fee purposes for each pollutant. Do not calculate PTE for air pollutants listed solely for fee purposes. Include all fugitives for fee purposes. You may round to the nearest tenth of a ton for yearly values or tenth of a pound for hourly values.

Air Pollutants	Emission Rates			CAS No.
	Actual Annual Emissions (tons/yr)	Potential to Emit		
		Hourly (lb/hr)	Annual (tons/yr)	
See Appendix A. Emissions Inventories				

Section 7
Initial Compliance Plan and Compliance Certification (I-COMP)

Federal Operating Permit Program (40 CFR Part 71)

INITIAL COMPLIANCE PLAN AND COMPLIANCE CERTIFICATION (I-COMP)

SECTION A - COMPLIANCE STATUS AND COMPLIANCE PLAN

Complete this section for each unique combination of applicable requirements and emissions units at the facility. List all compliance methods (monitoring, recordkeeping and reporting) you used to determine compliance with the applicable requirement described above. Indicate your compliance status at this time for this requirement and compliance methods and check "YES" or "NO" to the follow-up question.

Emission Unit ID(s):

All emissions units (OCS source and support vessels within 25 miles of the OCS source)

Applicable Requirement (Description and Citation):

Annual Emissions (tons/rolling 12 -months) shall be limited as follows:

Nitrogen Oxides- 225.3
Carbon Monoxide- 183.1
Greenhouse gas (CO_{2e})- 40,400.0

Owner-Requested Limits

Compliance Methods for the Above (Description and Citation):

Rolling 12-month monitoring, recordkeeping and reporting of emissions for the OCS source and support vessels while operating within 25 miles of the rig.

Emissions monitoring as follows:

1. **Engines- Jackup rig, OSRV (dedicated), Ice breakers (2), OVS (2), Ware Vessel, AHTS (2): Emissions units will be monitored as follows (the option chosen will be a function of the fuel monitoring capability of the vessel used and/or individual equipment):**

   Option 1- Monthly fuel use (gallons) x engine emissions factor* (lb/gal) or,

   Option 2- Monthly operating time (hours) x maximum engine emissions (lb/hour) as defined in this application or as measured by the method defined in the permit.

2. **Engines- Oil Spill Response Vessel (2nd vessel for spill response exercises),**

   34' work boats (4), OSRV (for spill exercise), Marine Research Vessel, Spill Storage Tanker:

Monthly operating time (hours) x maximum engine emissions (lb/hour) as defined in this application

3. **Rig and Vessel Fuel Tanks: EPA Tanks program (version 4.09D)**

4. **Incinerators:**

   Monthly operating time (hours) x maximum emissions factor* (lb/hour)

5. **Mud Degassing (GHG):**

   20,000 scf/day x emissions factor (lbs/scf) x 30 days/month= lbs VOC

6. **Heaters and Boilers:**

   Monthly operating time (hours) x maximum emissions (lb/hour) as defined in this application

***The emissions factor utilized will be the same as presented in this application (including converted into the appropriate units for use) unless an emissions unit specific factor is developed for a pollutant via approved EPA emissions measurements.**

Compliance Status:

NA In Compliance: Will you continue to comply up to permit issuance? __Yes __ No
NA Not In Compliance: Will you be in compliance at permit issuance? __Yes __No
Future-Effective Requirement: Do you expect to meet this on a timely basis? **X**Yes _No

Emission Unit ID(s):

All diesel fired equipment (DR-01-ME-01, DR-01-ME-02, DR-01-ME-03, DR-01-ME-04, DR-01-EE-01, DR-01-CE-01, DR-01-CE-02, DR-01-LW-01, DR-01-HE-01, DR-01-HE-02, IB-01-ME-01, IB-01-ME-02, IB-01-ME-03, IB-01-ME-04, IB-01-HG-01, IB-01-EG-01, IB-01-BO-1, IB-01-BO-02, IB-02-ME-01, IB-02-ME-02, IB-02-ME-03, IB-02-ME-04, IB-02-HG-01, IB-02-EG-01, IB-02-BO-01, IB-02-BO-02, SR-01-ME-01, SR-01-ME-02, SR-01-TE-01, SR-01-TE-02, SR-01-TE-03, SR-01-GE-01, SR-01-GE-02, SR-01-EG-01, SV-01-ME-01, SV-01-ME-02, SV-01-TE-01, SV-01-TE-02, SV-01-TE-03, SV-01-GE-01, SV-01-GE-02, SV-01-GE-03, SV-01-EG-01, SV-02-ME-01, SV-02-ME-02, SV-02-TE-01, SV-02-TE-02, SV-02-TE-03, SV-02-GE-01, SV-02-GE-02, SV-02-GE-03, SV-02-EG-01, WV-01-ME-01, WV-01-ME-02, WV-01-ME-03, WV-01-ME-04, WV-01-GE-01, WV-01-GE-02, WV-01-GE-03, WV-01-EG-01, WB-01-PE-01, WB-01-PE-02, WB-02-PE-01, WB-02-PE-02, WB-03-PE-01, WB-03-PE-02, WB-04-PE-01, WB-04-PE-02, MR-01-ME-01, MR-01-GE-01, MR-01-GE-02, MR-01-GE-03, ST-01-ME-01, ST-01-BO-01, ST-01-BO-02, ST-01-GE-01, ST-01-GE-02, ST-01-GE-03, ST-01-EG-01, SR-02-ME-01, SR-02-ME-02, SR-02-TE-01, SR-02-TE-02, SR-02-TE-03, SR-02-GE-01, SR-02-GE-02, SR-02-EG-01, AT-01-ME-01, AT-01-ME-02, AT-01-TE-01, AT-01-TE-02, AT-01-TE-03, AT-01-GE-01, AT-01-GE-02, AT-01-EG-01, AT-02-ME-01, AT-02-ME-02, AT-02-TE-01, AT-02-TE-02, AT-02-TE-03, AT-02-GE-01, AT-02-GE-02, A2-01-EG-01)

Applicable Requirement (Description and Citation):

The fuel burned shall be limited to ultra low sulfur diesel fuel (0.0015% max. S content)

Owner-Requested Limit

Compliance Methods for the Above (Description and Citation):

Fuel supply specification monitoring and recordkeeping for the fuel sulfur content and heat content for fuel used on the OCS source and support vessels operating within 25 miles of the OCS source.

Compliance Status:

NA In Compliance: Will you continue to comply up to permit issuance? ____Yes ____No

NA Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

Future-Effective Requirement: Do you expect to meet this on a timely basis? **X** Yes ____No

Emission Unit ID(s):

Main rig engines (DR-01-ME-01, DR-01-ME-02, DR-01-ME-03, DR-01-ME-04).

Applicable Requirement (Describe and Cite)

Utilize SCR during main engine operation

Owner-Requested Limit

Compliance Methods for the Above (Description and Citation):

Daily record of the main engine operating times and SCR operating times.

During SCR operation continuously record and maintain inlet air temperature to the SCR catalyst consistent with manufacturer's specifications for the range during the OCS operation.

On each day of SCR operation, record and maintain the exhaust ammonia concentration within the manufacturer's recommended range during OCS operation.

Compliance Status:

NA In Compliance: Will you continue to comply up to permit issuance? ____Yes ____No

NA Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

Future-Effective Requirement: Do you expect to meet this on a timely basis? **X** Yes ____No

Emission Unit ID(s):
Icebreakers (1 and 2) main and/or auxiliary engines (IB-01-ME-01, IB-01-ME-02, IB-01-ME-03, IB-01-ME-04, IB-02-ME-01, IB-02-ME-02, IB-02-ME-03, IB-02-ME-04)

Applicable Requirement (Description and Citation):

Utilize SCR for NOX emissions control and no main engine on the Icebreakers shall operate more than 1,000 per year within 25 miles of the OCS source.

Owner-Requested Limit

Compliance Methods for the Above (Description and Citation):

Monthly record of the main engine and SCR operating times while operating within 25 miles of the OCS source.

Maintain and continuously record inlet air temperature to SCR catalyst with manufacturer's specifications for the range during the OCS operation.

Daily monitoring and recording of ammonia concentration in the SCR outlet exhaust within manufacturer's recommended range during OCS operation.

Compliance Status:

NA In Compliance: Will you continue to comply up to permit issuance? ____Yes ____No

NA Not In Compliance: Will you be in compliance at permit issuance? ___Yes ___No

Future-Effective Requirement: Do you expect to meet this on a timely basis? **X** Yes ____No

Emission Unit ID(s):

All emissions units (OCS source and support vessels within 25 miles of the OCS source)

Applicable Requirement (Description and Citation):

Maintain compliance with National Ambient Air Quality Standards (NAAQs)

40 CFR 55.1
40 CFR 71.5(c)(5)- CAA section 504(e)

Compliance Methods for the Above (Description and Citation):

See accompany Air Quality Impacts Analysis (Volume II)

Compliance Status:

NA In Compliance: Will you continue to comply up to permit issuance? __Yes __ No

NA Not In Compliance: Will you be in compliance at permit issuance? __Yes __No

Future-Effective Requirement: Do you expect to meet this on a timely basis? **X Yes** ___No

Emission Unit ID(s):

DR-ME-01, DR-ME-02, DR-ME-03, DR-ME-04, DR-CE-01, DR-CE-02, DR-LW-01, DR-EE-01

Applicable Requirement (Describe and Cite):

Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

40 CFR Part 60 Subpart IIII

(Because these engines meet the definition of nonroad engine under 1068.1 and/or are regulated as marine engines as defined in 40 CFR Parts 94 or 1042, COP does not believe this rule applies. These requirements are provided at the request of EPA.)

Compliance Methods for the Above (Description and Citation):
If determined applicable, for stationary CI ICE fabricated or modified post April 1st 2006 and pre 2007 model year which must comply with the emission standards specified in §60.4204(a) or §60.4205(a), compliance shall be demonstrated according to one of the five methods provided for by the rule.

If determined applicable , for stationary CI ICE fabricated or modified on or after model year 2007 which must comply with the emission standards specified in §60.4204(b) or §60.4205(b), compliance shall be demonstrated by purchasing an engine certified to the emission standards in §60.4204(b), or §60.4205(b), as applicable, for the same model year and maximum engine power. The engine shall be installed and configured according to the manufacturer's specifications.

Emergency stationary ICE shall be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units shall be limited to 100 hours per year. There is no time limit on the use of emergency stationary ICE in emergency situations. Anyone may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency ICE beyond 100 hours per year. For owners and operators of emergency engines meeting standards under §60.4205 but not §60.4204, any operation other than emergency operation, and maintenance and testing as permitted in this section is prohibited.

If determined applicable, collect fuel samples and keep records.

If determined applicable, maintain documentation of engine emissions certifications on site as specified by regulation.

If determined applicable, records will be kept on site, as specified by regulation, to verify operating procedures as well as certification and/or test data.

If determined applicable, a re-settable hour meter shall be installed prior to startup of the engine.

Compalince will be maintained with 40 CFR Part 60 General Provisions as shown in Table 8.

Compliance Status:
NA In Compliance: Will you continue to comply up to permit issuance? ____Yes ____No
NA Not In Compliance: Will you be in compliance at permit issuance? ___Yes ____No __
Future-Effective Requirement: Do you expect to meet this on a timely basis? **X Yes** ____No

Emission Unit ID(s):

DR-ME-01, DR-ME-02, DR-ME-03, DR-ME-04, DR-CE-01, DR-CE-02, DR-LW-01, DR-EE-01

Applicable Requirement (Describe and Cite):

National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

40 CFR Part 63, Subpart ZZZZ

(Because these engines meet the definition of non-road engines under 1068.1 and/or are regulated as marine engines under 40 CFR Parts 94 or 1042, COP does not believe this rule applies. These requirements are provided at the request of EPA.)

Compliance Methods for the Above (Description and Citation):

If determined applicable, compliance with the numerical emission limitations established in 63.6630 and Table 4 of the subpart will be demonstrated based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in §63.6620 and Table 4 of the subpart.

If determined applicable, compliance will be maintained with the requirements in Table 2d to the subpart and the applicable operating limitations in Table 1b and Table 2b of the subpart.

If determined applicable, compliance with all monitoring, recordkeeping and reporting will be maintained as specified by the rule.

Compliance Status:
NA In Compliance: Will you continue to comply up to permit issuance? __Yes ____No
NA Not In Compliance: Will you be in compliance at permit issuance? __Yes ____No
Future-Effective Requirement: Do you expect to meet this on a timely basis? **X__Yes** ____No

Emission Unit ID(s): **DR-NC-01**

Applicable Requirement (Describe and Cite):

Commercial and industrial solid waste incineration (CISWI) units for which construction is commenced after November 30, 1999 or for which modification or reconstruction commenced on or after June 1, 2001 shall comply with 40 CFR Part 60 Subpart CCCC if it meets the following requirements:

(a) Your incineration unit is a new incineration unit as defined in §60.2015.
(b) Your incineration unit is a CISWI unit as defined in §60.2265.
(c) Your incineration unit is not exempt under §60.2020.

(COP does not believe CISWI applies because units utilized on offshore (OCS) operations were not considered in development of the standard and are already regulated under International Maritime Organization (IMO) environmental regulations. These requirements are provided at the request of EPA.)

Compliance Methods for the Above (Description and Citation):

If determined applicable, exemption: Municipal waste combustion units.

Burn greater than 30 percent municipal solid waste or refuse-derived fuel, as defined in subpart Ea, subpart Eb, subpart AAAA, and subpart BBBB of this part, and that have the capacity to burn less than 35 tons (32 megagrams) per day of municipal solid waste or refuse-derived fuel, if you meet the two requirements in paragraphs (c)(2)(i) and (ii) of this section.
(i) Notify the Administrator that the unit meets these criteria.
(ii) Keep records on a calendar quarter basis of the weight of municipal solid waste burned, and the weight of all other fuels and wastes burned in the unit.

40 CFR Part 60 Subpart CCCC §60.2020(C) (2)

Submit notifications and keep records as specified.

Compliance Status:

NA In Compliance: Will you continue to comply up to permit issuance? ____Yes ____No
NA Not In Compliance: Will you be in compliance at permit issuance? ___Yes ____No
Future-Effective Requirement: Do you expect to meet this on a timely basis? **X Yes** ____No

B. SCHEDULE OF COMPLIANCE- NA

Complete this section if you answered "NO" to any of the questions in section A. Also complete this section if required to submit a schedule of compliance by an applicable requirement. Please attach copies of any judicial consent decrees or administrative orders for this requirement.

Unit(s)_____ Requirement_____

Reason for Noncompliance. Briefly explain reason for noncompliance at time of permit issuance or that future-effective requirement will not be met on a timely basis:

Narrative Description of how Source Compliance Will be Achieved. Briefly explain your plan for achieving compliance:

Schedule of Compliance. Provide a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance, including a date for final compliance.

Remedial Measure or Action	Date to be Achieved

C. SCHEDULE FOR SUBMISSION OF PROGRESS REPORTS- NA

Only complete this section if you are required to submit one or more schedules of compliance in section B or if an applicable requirement requires submittal of a progress report. If a schedule of compliance is required, your progress report should start within 6 months of application submittal and subsequently, no less than every six months. One progress report may include information on multiple schedules of compliance.

Contents of Progress Report (describe):

First Report____/____/___ Frequency of Submittal_____

Contents of Progress Report (describe):

First Report____/____/___ Frequency of Submittal_____

D. SCHEDULE FOR SUBMISSION OF COMPLIANCE CERTIFICATIONS

This section must be completed once by every source. Indicate when you would prefer to submit compliance certifications during the term of your permit (at least once per year).

Frequency of submittal **Semiannual** Beginning **1/31/2014**

E. COMPLIANCE WITH ENHANCED MONITORING & COMPLIANCE CERTIFICATION REQUIREMENTS

This section must be completed once by every source. To certify compliance with these, you must be able to certify compliance for every applicable requirement related to monitoring and compliance certification at every unit.

Enhanced Monitoring Requirements: **NA** ____ In Compliance ____ Not In Compliance

Compliance Certification Requirements: **NA** ____ In Compliance ____ Not In Compliance

Section 8
Fee Calculation Worksheet

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 04/30/2012

Federal Operating Permit Program (40 CFR Part 71)

FEE CALCULATION WORKSHEET (FEE)

Use this form initially, or thereafter on an annual basis, to calculate part 71 fees.

A. General Information

Type of fee (Check one): **X** Initial __ Annual

Deadline for submitting fee calculation worksheet **NA**

For initial fees, emissions are based on (Check one): **No actual emissions yet; emissions are based on potential to emit (PTE). Operations are projected to commence 7/15/2013.**

___ Actual emissions for the preceding calendar year. (Required in most circumstances.)

___ Estimates of actual emissions for the current calendar year. (Required when operations commenced during the preceding calendar year.)

Date commenced operations __/__/____

___ Estimates of actual emissions for the preceding calendar year. (Optional after a part 71 permit was issued to replace a part 70 permit, but only if initial fee payment is due between January 1 and March 31; otherwise use actual emissions for the preceding calendar year.)

For annual fee payment, you are required to use actual emissions for the preceding calendar year.

B. Source Information: Complete this section only if you are paying fees but not applying for a permit.

Source or facility name_____

Mailing address:

Street or P.O. Box _____

City_____ State_____ ZIP_____ - _____

Contact person_____ Title_____

Telephone (_____) _____ - _____ Ext_____ Part 71 permit no._____

C. Certification of Truth, Accuracy and Completeness: Only needed if not submitting a separate form CTAC.

I certify under penalty of law, based on information and belief formed after reasonable inquiry, the statements and information contained in this submittal (form and attachments) are true, accurate and complete.

Name (signed) _____

Name (typed) _____ Date:____ /____ /_____

D. Annual Emissions Report for Fee Calculation Purposes – Non-HAP

You may use this to report actual emissions (tons per year) of regulated pollutants (for fee calculation) on a calendar-year basis for both initial and annual fee calculation purposes. Section E is designed to report HAP emissions. Quantify all actual emissions, including fugitives, but do not include insignificant emissions and certain regulated air pollutants that are not counted for fee purposes, such as CO (see instructions). You may round to the nearest tenth of a ton on this form. Sum the emissions in each column and enter a subtotal at the bottom of the page. If any subtotal exceeds 4,000 tons, enter 4,000 for that column.

This data is for **2013** (year)

Emission Unit ID	NOx	$PM_{10}/_{2.5}$	VOC	SO2	Lead	H2S	H2SO4
See Appendix A. Emissions Unit Inventories - **No actual emissions yet, emissions are based on PTE**							
SUBTOTALS	**225.1**	**13.9**	**28.5**	**0.6**	**0.03**	**0.02**	**0.04**

E. Annual Emissions Report for Fee Calculation Purposes -- HAP

HAP Identification. Identify individual HAP emitted at the facility, identify the CAS number, and assign a unique identifier for use in the second table in this section. Whenever assigning identifier codes, use "HAP1" for the first, "HAP2" for the second, and so on.

Name of HAP	CAS No	Identifier
See Appendix A. HAP Emissions Unit Inventories		

HAP Emissions. Report the actual emissions of individual HAP identified above. Use the identifiers assigned in the table above. Include all emissions, including fugitives, and do not include insignificant emissions. You may round to the nearest tenth of a ton. Sum the emissions in each column and enter a subtotal at the bottom of the page. If any subtotal exceeds 4,000 tons, enter 4,000.

This data is for **2013** (year)

Emissions Unit ID	Total HAP	HAP___	HAP___	HAP___	HAP___	HAP___
See Appendix A. HAP Emissions Unit Inventories						
SUBTOTALS	**3.09**					

F. Fee Calculation Worksheet

This section is used to calculate the total fee owed for both initial and annual fee payment purposes. Reconciliation is only for cases where you are paying the annual fee and you used any type of estimate of actual emissions when you calculated the initial fee. If you do not need to reconcile fees, only complete line 1-5 and then skip down to lines 21 – 26. See instructions for more detailed explanation.

1. Sum the emissions from section D of this form (non-HAP) and enter the total (tons).	**268.49**
2. Sum the emissions from section E of this form (HAP) and enter the total (tons).	**3.09**
3. Sum lines 1 and 2.	**271.58**
4. Enter the emissions that were counted twice. If none, enter "0."	**0**
5. Subtract line 4 from line 3, round to the nearest ton, and enter the result here.	**271.58**

RECONCILIATION
(WHEN INITIAL FEES WERE BASED ON ESTIMATES FOR THE "CURRENT" CALENDAR YEAR)

Only complete lines 6-10 if you are paying the first annual fee and initial fees were based on estimated actual emissions for the calendar year in which you paid initial fees; otherwise skip to line 11 or to line 21.

6. Enter the total estimated actual emissions for the year the initial fee was paid (previously reported on line 5 of the initial fee form).	
7. If line 5 is greater than line 6, subtract line 6 from line 5, and enter the result. Otherwise enter "0."	
8. If line 6 is greater than line 5, subtract line 5 from line 6, and enter the result. Otherwise enter "0."	
9. If line 7 is greater than 0, multiply line 7 by last year's fee rate ($/ton) and enter the result here. This is the underpayment. Go to line 21.	
10. If line 8 is greater than 0, multiply line 8 by last year's fee rate ($/ton) and enter the result here. This is the overpayment. Go to line 21.	

RECONCILIATION
(WHEN INITIAL FEES WERE BASED ON ESTIMATES FOR THE "PRECEDING" CALENDAR YEAR)

Only complete lines 11-20 if you are paying the first annual fee and initial fees were based on estimated actual emissions for the calendar year preceding initial fee payment; otherwise skip to line 21. If completing this section, you will also need to complete sections D and E to report actual emissions for the calendar year preceding initial fee payment.

11. Sum the actual emissions from section D (non-HAP) for the calendar year preceding initial fee payment and enter the result here.	
12. Sum the actual emissions from section E (HAP) for the calendar year preceding initial fee payment and enter the result here.	
13. Add lines 11 and 12 and enter the total here. These are total actual emissions for the calendar year preceding initial fee payment.	
14. Enter double counted emission from line 13 here. If none, enter "0."	
15. Subtract line 14 from line 13, round to the nearest ton, and enter the result here.	

16. Enter the total estimated actual emissions previously reported on line 5 of the initial fee form. These are estimated actual emissions for the calendar year preceding initial fee payment.	
17. If line 15 is greater than line 16, subtract line 16 from line 15, and enter the result here. Otherwise enter "0."	
18. If line 16 is greater than line 15, subtract line 15 from line 16, and enter the result here. Otherwise enter "0."	
19. If line 17 is greater than 0, multiply line 17 by last year's fee rate ($/ton) and enter the result here. This is the underpayment.	
20. If line 18 is greater than 0, multiply line 18 by last year's fee rate ($/ton) and enter the result on this line. This is the overpayment.	
FEE CALCULATION	
21. Multiply line 5 (tons) by the current fee rate ($/ton) and enter the result here.	**$12,794.13**
22. Enter any underpayment from line 9 or 19 here. Otherwise enter "0."	
23. Enter any overpayment from line 10 or 20 here. Otherwise enter "0."	**$12,130.31***
24. If line 22 is greater than "0," add it to line 21 and enter the result here. If line 23 is greater than "0," subtract this from line 21 and enter the result here. Otherwise enter the amount on line 21 here. This is the fee adjusted for reconciliation.	**$663.82**
25. If your account was credited for fee assessment error since the last time you paid fees, enter the amount of the credit here. Otherwise enter "0."	**0**
26. Subtract line 25 from line 24 and enter the result here. Stop here. This is the total fee amount that you must remit to EPA.	**$663.82**

***An application fee of $12,130.31 was submitted on 2/10/2010.**

Section 9
Fee Filing Form

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 04/30/2012

Federal Operating Permit Program (40 CFR Part 71)

FEE FILING FORM (FF)

Complete this form each time you prepare form **FEE** and send this form to the appropriate lockbox bank address, along with full payment. This form required at time of initial fee payment, and thereafter, when paying annual fees.

Source or Facility Name ConocoPhillips Company

Source Location Chukchi Sea, Alaska

EPA Region where Source Located Region 10

Mailing Address:

Street/P.O. Box 700 G St., ATO-1970, P.O. Box 100360 City Anchorage

State AK ZIP 99510- 0360

Contact Person: Brad Thomas Title Senior Environmental Scientist

Telephone (907) 263 - 4741 Ext. _____

Total Fee Payment Remitted: $ **663.82**

GEORGIA C. MONZON
4846 TAMPA CIR.
ANCHORAGE AK 99508

1001

DATE Nov 28, 2011 56-1551/441

PAY TO THE ORDER OF US Environmental Protection Agency $ 663 82/100

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Not Valid For Amount Over $5000

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CONTACT: LORI DANA MICHELLE JOE DICK VAL PATTI ELIZBTH EVELYN CRAIG ERIC BLAKE KIM OWENS(TDY PCS)

COLLECTION INFORMATION

DEPOSIT (SCHEDULE) NUMBER 2721710

SUSPENSE [ ] LIABILITY [ ]

CR NUMBER 27101071Q02

REMOVED BY

BILL NUMBER (IF DIFFERENT FROM CR NUMBER)

REMOVED DATE

IFMS ENTERED DATE 2/10/10

DATE ITEM REC'D (IF NOT CIRCLED ON CHECK)

COLLECTION ENTRY DONE BY ALEX

NOT IN: ICIS, BRAINS, RHC DATABASE part 71

IPAC TO: LV RTP HQ

ACCOUNTING

CR Line	BFY	APPR	Bud Org	PRC	BOC	Site/Proj	AMOUNT	Ref. Line	Rep Cat
								998	
								997	
15	10	5295					12,130.31	001	
								002	
								003	
								004	
								005	
								999	

KEY: REF LINE NO. 997=Interest LINE NO. 998=Handling LINE NO. 999=Penalty

QUALITY MEANS MEETING THE REQUIREMENTS BOX 979078
SEQ# 002 $ 0001213031 BA# 34 02-09-10 20 3

usbancorp. Five Star Banking Company

THIS IS WATERMARKED PAPER-DO NOT ACCEPT WITHOUT NOTING WATERMARK-HOLD TO LIGHT TO VERIFY WATERMARK

62-38/311
Check No: 00908614

Deutsche Bank Trust Company Delaware

ConocoPhillips Company
Houston, TX

02/04/2010 00908614 $****12,130.31*

96069

PAY TO THE ORDER OF

EXACTLY ***12130 US Dollars and 31 Cents***

U S ENVIRONMENTAL PROTECTION AGENCY
C/O US BANK GOVT LOCK BOX 979078
US EPA FOIA & MISC PAYMENTS
MAIL STATION SL MO C2GL
1005 CONVENTION PLAZA
SAINT LOUIS, MO 63101-1200

Treasurer

⑈00908614⑈ ⑆031100380⑆ 00538062⑈ ⑈0001213031⑈

Section 10
Certification of Truth, Accuracy, and Completeness (CTAC)

United States Environmental Protection Agency

OMB No. 2060-0336, Approval Expires 04/30/2012

Federal Operating Permit Program (40 CFR Part 71)

CERTIFICATION OF TRUTH, ACCURACY, AND COMPLETENESS (CTAC)

This form must be completed, signed by the "Responsible Official" designated for the facility or emission unit, and sent with each submission of documents (i.e., application forms, updates to applications, reports, or any information required by a part 71 permit).

A. Responsible Official

Name: (Last) Faust (First) Michael (MI) J

Title Chukchi Project Integration Manager

Street or P.O. Box 700 G Street, P.O. Box 100360

City Anchorage State AK ZIP 99510 - _____

Telephone (907) 265 - 6354 Ext. _____ Facsimile (907) 265 - 6335

B. Certification of Truth, Accuracy and Completeness (to be signed by the responsible official)

I certify under penalty of law, based on information and belief formed after reasonable inquiry, the statements and information contained in these documents are true, accurate and complete.

Name (signed) Michael J. Foust

Name (typed) Michael J. Foust Date: 11/29/2011

Appendix A
Emissions Inventories

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory

	Emission Unit Description	Type	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	For Form EUD: Maximum Heat Input	For Form EUD: Annual Fuel Use
Drill Rig Equipment									
	Main Drill Rig Engine 1	Wärtsilä 8L26A2	2,480 kW	Drilling mode	1,179 hr/yr	205.8 g/kWh	2480 kW	22 MMBtu/hr	196,651 gal/yr
	Main Drill Rig Engine 1	Wärtsilä 8L26A2	2,480 kW	Preload	15 hr/yr	217 g/kWh	1249 kW	-- --	1,329 gal/yr
	Main Drill Rig Engine 1	Wärtsilä 8L26A2	2,480 kW	Preload Hold & Discharge	9 hr/yr	358 g/kWh	256 kW	-- --	270 gal/yr
	Main Drill Rig Engine 1	Wärtsilä 8L26A2	2,480 kW	Jackup to Final Air Gap	3 hr/yr	221 g/kWh	999 kW	-- --	216 gal/yr
	Main Drill Rig Engine 1	Wärtsilä 8L26A2	2,480 kW	Prepare for Drilling	18 hr/yr	205.8 g/kWh	2480 kW	-- --	3,002 gal/yr
	Main Drill Rig Engine 2	Wärtsilä 8L26A2	2,480 kW	Drilling mode	1,179 hr/yr	205.8 g/kWh	2480 kW	22 MMBtu/hr	196,651 gal/yr
	Main Drill Rig Engine 2	Wärtsilä 8L26A2	2,480 kW	Preload	15 hr/yr	217 g/kWh	1249 kW	-- --	1,329 gal/yr
	Main Drill Rig Engine 2	Wärtsilä 8L26A2	2,480 kW	Preload Hold & Discharge	9 hr/yr	358 g/kWh	256 kW	-- --	270 gal/yr
	Main Drill Rig Engine 2	Wärtsilä 8L26A2	2,480 kW	Jackup to Final Air Gap	3 hr/yr	221 g/kWh	999 kW	-- --	216 gal/yr
	Main Drill Rig Engine 2	Wärtsilä 8L26A2	2,480 kW	Prepare for Drilling	18 hr/yr	205.8 g/kWh	2480 kW	-- --	3,002 gal/yr
	Main Drill Rig Engine 3	Wärtsilä 8L26A2	2,480 kW	Drilling mode	1,179 hr/yr	205.8 g/kWh	2480 kW	22 MMBtu/hr	196,651 gal/yr
	Main Drill Rig Engine 3	Wärtsilä 8L26A2	2,480 kW	Preload	15 hr/yr	358 g/kWh	256 kW	-- --	449 gal/yr
	Main Drill Rig Engine 3	Wärtsilä 8L26A2	2,480 kW	Preload Hold & Discharge	9 hr/yr	358 g/kWh	256 kW	-- --	270 gal/yr
	Main Drill Rig Engine 3	Wärtsilä 8L26A2	2,480 kW	Jackup to Final Air Gap	3 hr/yr	221 g/kWh	999 kW	-- --	216 gal/yr
	Main Drill Rig Engine 4	Wärtsilä 8L26A2	2,480 kW	Drilling mode	1,179 hr/yr	205.8 g/kWh	2480 kW	22 MMBtu/hr	196,651 gal/yr
	Emergency Back-up Engine	Caterpillar Diesel 3508 B	968 kW	Drilling mode	75 hr/yr	205 g/kWh	968 kW	8.6 MMBtu/hr	4,864 gal/yr
	Cement Engine 1	Caterpillar 15 DITA	403 kW	Drilling mode	131 hr/yr	29 gal/hr	403 kW	3.8 MMBtu/hr	3,799 gal/yr
	Cement Engine 2	Caterpillar 15 DITA	403 kW	Drilling mode	131 hr/yr	29 gal/hr	403 kW	3.8 MMBtu/hr	3,799 gal/yr
	Logging Winch	Caterpillar C7 Acert Engine	187 kW	Drilling mode	273 hr/yr	13 gal/hr	187 kW	1.8 MMBtu/hr	3,626 gal/yr
	Heater 1	To be determined	3.5 MMBtu/hr*	Drilling mode	2,400 hr/yr	26 gal/hr	3.5 MMBtu/hr*	3.5 MMBtu/hr	63,590 gal/yr
	Heater 2	To be determined	3.5 MMBtu/hr*	Drilling mode	2,400 hr/yr	26 gal/hr	3.5 MMBtu/hr*	3.5 MMBtu/hr	63,590 gal/yr
	Incinerator	To be determined	N A	Drilling mode	65 tons/yr	276 lbs/hr	N A	1.7 MMBtu/hr	65 tons/yr
	Fuel Tank 1	71,000 gallons	N A	Drilling mode	2,400 hrs/yr	470,220 gal/yr**	N A	NA	470,220 gal/yr**
	Fuel Tank 2	71,000 gallons	N A	Drilling mode	2,400 hrs/yr	470,220 gal/yr**	N A	NA	470,220 gal/yr**
	Mud Degassing	Water Based Mud & Cuttings	20,000 scf/day	Drilling mode	100 days/yr	NA	20000 scf/day	NA	NA
			*Heat input rate				**Max throughput	*Heat input rate	**Max throughput
Ice Breaker 1			**675 hours cruising**						
	Main Engine 1	Wärtsilä Vasa 16V32/6000kW	7,500 kW	Cruising	675 hr/yr	426 gal/hr	8046 hp	70.4 MMBtu/hr	287,801 gal/yr
	Main Engine 2	Wärtsilä Vasa 16V32/6000kW	7,500 kW	Cruising	675 hr/yr	426 gal/hr	8046 hp	70.4 MMBtu/hr	287,801 gal/yr
	Main Engine 3	Wärtsilä Vasa 12V32/4500 kW	7,500 kW	Cruising	675 hr/yr	320 gal/hr	6035 hp	70.4 MMBtu/hr	215,851 gal/yr
	Main Engine 4	Wärtsilä Vasa 12V32/4500 kW	7,500 kW	Cruising	675 hr/yr	320 gal/hr	6035 hp	70.4 MMBtu/hr	215,851 gal/yr
	Harbor Generator	Wärtsilä Vasa 4R22 - 710kW	952 hp	Cruising	8 hr/yr	50 gal/hr	952 hp	6.7 MMBtu/hr	404 gal/yr
	Emergency Generator	Caterpillar 3412 - 300kW	402 hp	Cruising	8 hr/yr	21 gal/hr	402 hp	2.8 MMBtu/hr	171 gal/yr
	Boiler 1	Aquamaster Rauma Unex BH-2000	3.70 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	3.7 MMBtu/hr	18,900 gal/yr
	Boiler 2	Aquamaster Rauma Unex BH-2000	3.70 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	3.7 MMBtu/hr	18,900 gal/yr
	Incinerator	Aquamaster Rauma Unex BH-2000	N A	Cruising	675 hr/yr	175 lb/hr	N A	1.1 MMBtu/hr	118,125 lb/yr
							*Heat input rate		
Ice Breaker 2			**675 hours cruising**						
	Main Engine 1	Wärtsilä Vasa 16V32/6000kW	7,500 kW	Cruising	675 hr/yr	426 gal/hr	8046 hp	70.4 MMBtu/hr	287,801 gal/yr
	Main Engine 2	Wärtsilä Vasa 16V32/6000kW	7,500 kW	Cruising	675 hr/yr	426 gal/hr	8046 hp	70.4 MMBtu/hr	287,801 gal/yr
	Main Engine 3	Wärtsilä Vasa 12V32/4500 kW	7,500 kW	Cruising	675 hr/yr	320 gal/hr	6035 hp	70.4 MMBtu/hr	215,851 gal/yr
	Main Engine 4	Wärtsilä Vasa 12V32/4500 kW	7,500 kW	Cruising	675 hr/yr	320 gal/hr	6035 hp	70.4 MMBtu/hr	215,851 gal/yr
	Harbor Generator	Wärtsilä Vasa 4R22 - 710kW	952 hp	Cruising	8 hr/yr	50 gal/hr	952 hp	6.7 MMBtu/hr	404 gal/yr
	Emergency Generator	Caterpillar 3412 - 300kW	402 hp	Cruising	8 hr/yr	21 gal/hr	402 hp	2.8 MMBtu/hr	171 gal/yr
	Boiler 1	Aquamaster Rauma Unex BH-2000	3.70 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	3.7 MMBtu/hr	18,900 gal/yr
	Boiler 2	Aquamaster Rauma Unex BH-2000	3.70 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	3.7 MMBtu/hr	18,900 gal/yr
	Incinerator	Aquamaster Rauma Unex BH-2000	N A	Cruising	675 hr/yr	175 lb/hr	N A	1.1 MMBtu/hr	118,125 lb/yr
							*Heat input rate		

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory

	Emission Unit Description	Type	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	For Form EUD: Maximum Heat Input	For Form EUD: Annual Fuel Use
Anchor Handler Tug Supply Vessel (AHTS)			**Holds rig in place for 2.5 hours, Cruises to 0.5 miles away (0.04 hours), where it anchors for the rest of the season/ 2 rig moves a year**						
	Main Engine 1	Caterpillar 3608	2710 kW	Cruising	0.08 hr/yr	99 gal/hr	1400 kW	25.4 MMBtu/hr	8 gal/yr
	Main Engine 2	Caterpillar 3608	2710 kW	Cruising	0.08 hr/yr	99 gal/hr	1400 kW	25.4 MMBtu/hr	8 gal/yr
	Main Engine 1	Caterpillar 3608	2710 kW	Mooring Assist	9.0 hr/yr	71 gal/hr	1000 kW	-- --	639 gal/yr
	Main Engine 2	Caterpillar 3608	2710 kW	Mooring Assist	9.0 hr/yr	71 gal/hr	1000 kW	-- --	639 gal/yr
	Tow Winch Engine	Caterpillar 3508	750 kW	Mooring Assist	9.0 hr/yr	11 gal/hr	150 kW	7.0 MMBtu/hr	96 gal/yr
	Thruster Engine 1	Caterpillar 3508	750 kW	Mooring Assist	9.0 hr/yr	27 gal/hr	375 kW	7.0 MMBtu/hr	240 gal/yr
	Thruster Engine 2	Caterpillar C-32	750 kW	Mooring Assist	9.0 hr/yr	27 gal/hr	375 kW	7.0 MMBtu/hr	240 gal/yr
	Generator 1	Caterpillar 3412	500 kW	Anchored	1,196 hr/yr	18 gal/hr	250 kW	4.7 MMBtu/hr	21,240 gal/yr
	Generator 1	Caterpillar 3412	500 kW	Mooring Assist	9.0 hr/yr	21 gal/hr	300 kW	-- --	192 gal/yr
	Generator 1	Caterpillar 3412	500 kW	Cruising	0.08 hr/yr	18 gal/hr	250 kW	-- --	1 gal/yr
	Generator 2	Caterpillar 3412	500 kW	DP	1,196 hr/yr	11 gal/hr	150 kW	4.7 MMBtu/hr	12,744 gal/yr
	Emergency Generator	Caterpillar 3306	206 kW	Non-propulsion	8 hr/yr	20 gal/hr	276 hp	1.9 MMBtu/hr	157 gal/yr
Oil Spill Response Vessel 1 (Dedicated OSRV)			**Lays boom for rig refuels 18x and refuels AHTS 4x, Always within 25 miles of the rig**						
	Main Engine 1	Caterpillar 3516C	3,070 bhp	Cruising	864 hr/yr	77.5 gal/hr	-- --	21.5 MMBtu/hr	66,960 gal/yr
	Main Engine 2	Caterpillar 3516C	3,070 bhp	Cruising	864 hr/yr	77.5 gal/hr	-- --	21.5 MMBtu/hr	66,960 gal/yr
	Thruster Engine 1	Brunvoll CPP Drop Down Azimuth	1,100 hp	Laying Boom	36 hr/yr	11.6 gal/hr	-- --	7.7 MMBtu/hr	418 gal/yr
	Thruster Engine 2	Brunvoll CPP Tunnel	1,100 hp	Laying Boom	36 hr/yr	10.6 gal/hr	-- --	7.7 MMBtu/hr	382 gal/yr
	Thruster Engine 3	Brunvoll CPP Tunnel (Stern)	1,100 hp	Laying Boom	36 hr/yr	7.1 gal/hr	-- --	7.7 MMBtu/hr	256 gal/yr
	Generator 1	Caterpillar C 32	710 kW	Cruising/DP/Anchored	1,164 hr/yr	11.5 gal/hr	-- --	6.7 MMBtu/hr	13,433 gal/yr
	Generator 1	Caterpillar C 32	710 kW	Laying Boom	36 hr/yr	11.5 gal/hr	-- --	-- --	415 gal/yr
	Generator 2	Caterpillar C 32	710 kW	Cruising/DP	1,164 hr/yr	11.5 gal/hr	-- --	6.7 MMBtu/hr	13,433 gal/yr
	Generator 2	Caterpillar C 32	710 kW	Laying Boom	36 hr/yr	11.5 gal/hr	-- --	-- --	415 gal/yr
	Emergency Generator	CAT C9D	279 hp	Cruising/DP	8 hr/yr	15 gal/hr	279 hp	2.0 MMBtu/hr	118 gal/yr
Oil Spill Response Vessel 2			**Only Within 25 Miles of Rig During Spill Response Exercises 48 hrs + 12 hrs travel time**						
	Main Engine 1	Caterpillar 3516C	3,070 bhp	Cruising	60 hr/yr	77.5 gal/hr	-- --	21.5 MMBtu/hr	4,650 gal/yr
	Main Engine 2	Caterpillar 3516C	3,070 bhp	Cruising	60 hr/yr	77.5 gal/hr	-- --	21.5 MMBtu/hr	4,650 gal/yr
	Thruster Engine 1	Brunvoll CPP Drop Down Azimuth	1,100 hp	Cruising	0 hr/yr	0 gal/hr	-- --	7.7 MMBtu/hr	0 gal/yr
	Thruster Engine 2	Brunvoll CPP Tunnel	1,100 hp	Cruising	0 hr/yr	0 gal/hr	-- --	7.7 MMBtu/hr	0 gal/yr
	Thruster Engine 3	Brunvoll CPP Tunnel (Stern)	1,100 hp	Cruising	0 hr/yr	0 gal/hr	-- --	7.7 MMBtu/hr	0 gal/yr
	Generator 1	Caterpillar C 32	710 kW	Cruising/DP	30 hr/yr	11.5 gal/hr	-- --	6.7 MMBtu/hr	346 gal/yr
	Generator 2	Caterpillar C 32	710 kW	Cruising/DP	30 hr/yr	11.5 gal/hr	-- --	6.7 MMBtu/hr	346 gal/yr
	Emergency Generator	CAT C9D	279 hp	Cruising/DP	8 hr/yr	15 gal/hr	279 hp	2.0 MMBtu/hr	118 gal/yr
Offshore Supply Vessels (OSV1 & OSV2)			**Option 1: Resupplying Rig (63x per year)-Includes 18 Refuelling Trips & Jackup/Jackdown**						
	Main Engine 1	Caterpillar 3516C	3151 hp	Cruising	378 hr/yr	74.5 gal/hr	-- --	9.8 MMBtu/hr	28,161 gal/yr
	Main Engine 1	Caterpillar 3516C	3151 hp	Idling	133 hr/yr	67 gal/hr	-- --	-- --	8,911 gal/yr
	Main Engine 2	Caterpillar 3516C	3151 hp	Cruising	378 hr/yr	74.5 gal/hr	-- --	9.8 MMBtu/hr	28,161 gal/yr
	Main Engine 2	Caterpillar 3516C	3151 hp	Idling	133 hr/yr	67 gal/hr	-- --	-- --	8,911 gal/yr
	Thruster Engine 1	Caterpillar C32	950 hp	DP	756 hr/yr	45 gal/hr	950 bhp	5.9 MMBtu/hr	34,020 gal/yr
	Thruster Engine 2	Caterpillar C32	950 hp	DP	756 hr/yr	45 gal/hr	950 bhp	5.9 MMBtu/hr	34,020 gal/yr
	Thruster Engine 3	Caterpillar C32	950 hp	DP	756 hr/yr	45 gal/hr	950 bhp	5.9 MMBtu/hr	34,020 gal/yr
	Generator	Caterpillar C18	400 kW	Cruising/DP/Idle	634 hr/yr	27 gal/hr	400 kW	3.6 MMBtu/hr	17,105 gal/yr
	Generator	Caterpillar C18	400 kW	Cruising/DP/Idle	634 hr/yr	27 gal/hr	400 kW	3.6 MMBtu/hr	17,105 gal/yr
	Generator	Caterpillar C18	400 kW	Cruising/DP/Idle	- hr/yr	27 gal/hr	400 kW	3.6 MMBtu/hr	- gal/yr
	Emergency Generator	Caterpillar C4.4	99 kW	Cruising/DP/Idle	8 hr/yr	8 gal/hr	99 kW	1.1 MMBtu/hr	64 gal/yr

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory

	Emission Unit Description	Type	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	For Form EUD: Maximum Heat Input	For Form EUD: Annual Fuel Use
Ware Vessel (WV) w/ AHTS and OSV backup			**Option 2: Resupplying Rig (60x per year)-Includes 18 Refuelling Trips**						
	Main Engine 1	Caterpillar 3516C	2,387 kW	Cruising	360 hr/yr	87 gal/hr	-- --	11.5 MMBtu/hr	31,320 gal/yr
	Main Engine 2	Caterpillar 3516C	2,387 kW	Cruising	360 hr/yr	87 gal/hr	-- --	11.5 MMBtu/hr	31,320 gal/yr
	Main Engine 3	Caterpillar 3516C	2,387 kW	DP/Idling	820 hr/yr	81 gal/hr	-- --	10.7 MMBtu/hr	66,420 gal/yr
	Main Engine 4	Caterpillar 3516C	2,387 kW	DP/Idling	820 hr/yr	81 gal/hr	-- --	10.7 MMBtu/hr	66,420 gal/yr
	Generator 1	Caterpillar C18	504 kW	Cruising/DP/Idling	590 hr/yr	32 gal/hr	504 kW	4.2 MMBtu/hr	18,880 gal/yr
	Generator 2	Caterpillar C18	504 kW	Cruising/DP/Idling	590 hr/yr	32 gal/hr	504 kW	4.2 MMBtu/hr	18,880 gal/yr
	Generator 3	Caterpillar C18	504 kW	Cruising/DP/Idling	- hr/yr	32 gal/hr	504 kW	4.2 MMBtu/hr	- gal/yr
	Emergency Generator	Caterpillar 3306	170 kW	Cruising/DP/Idling	8 hr/yr	12.8 gal/hr	170 kW	1.7 MMBtu/hr	102 gal/yr
34' boom work boats - 4			**4 WBs up to 48 hr/yr for spill exercises**						
	WB-1 Propulsion Engine 1	Cummins QSB5.9-305CD	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	2.0 MMBtu/hr	725 gal/yr
	WB-1 Propulsion Engine 2	Cummins QSB5.9-305CD	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	2.0 MMBtu/hr	725 gal/yr
	WB-2 Propulsion Engine 1	Cummins QSB5.9-305CD	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	2.0 MMBtu/hr	725 gal/yr
	WB-2 Propulsion Engine 2	Cummins QSB5.9-305CD	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	2.0 MMBtu/hr	725 gal/yr
	WB-3 Propulsion Engine 1	Cummins QSB5.9-305CD	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	2.0 MMBtu/hr	725 gal/yr
	WB-3 Propulsion Engine 2	Cummins QSB5.9-305CD	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	2.0 MMBtu/hr	725 gal/yr
	WB-4 Propulsion Engine 1	Cummins QSB5.9-305CD	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	2.0 MMBtu/hr	725 gal/yr
	WB-4 Propulsion Engine 2	Cummins QSB5.9-305CD	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	2.0 MMBtu/hr	725 gal/yr
Marine Research Vessel			**600 hours per year within 25 Mile Zone**						
	Main Engine	Caterpillar	850 hp	Cruising	600 hr/yr	45 gal/hr	850 hp	6.0 MMBtu/hr	27,026 gal/yr
	Generator 1	Caterpillar	135 kW	Cruising	600 hr/yr	10 gal/hr	135 kW	1.3 MMBtu/hr	5,754 gal/yr
	Generator 2	Caterpillar	90 kW	Cruising	600 hr/yr	6 gal/hr	90 kW	0.8 MMBtu/hr	3,836 gal/yr
	Generator 3	Caterpillar	40 kW	Cruising	600 hr/yr	3 gal/hr	40 kW	0.4 MMBtu/hr	1,705 gal/yr
Spill Storage Tanker			**Cruises to 5 miles away (1.18 hours per trip each way) and Anchors for 48 hours for Spill Response Exercises**						
	Main Engine 1	Aframax class sized	19,460 bhp	Cruising	5 hr/yr	1031 gal/hr	19,460 bhp	136.2 MMBtu/hr	4,867 gal/yr
	Generator 1	Aframax class sized	600 kW	Anchored/Cruising	29 hr/yr	43 gal/hr	600 kW	5.6 MMBtu/hr	1,236 gal/yr
	Generator 2	Aframax class sized	600 kW	Cruising	29 hr/yr	43 gal/hr	600 kW	5.6 MMBtu/hr	1,236 gal/yr
	Generator 3	Aframax class sized	600 kW	Anchored	0 hr/yr	0 gal/hr	0 kW	5.6 MMBtu/hr	- gal/yr
	Emergency Generator	Aframax class sized	350 kW	Anchored	0 hr/yr	0 gal/hr	0 kW	3.3 MMBtu/hr	- gal/yr
	Boiler 1	Mac-55B	4900 kg/hr	Anchored/Cruising	53 hr/yr	4900 kg/hr	212 MMBtu/hr*	211.6 MMBtu/hr	84,422 gal/yr
	Boiler 2	Mac-55B	4900 kg/hr	Anchored	0 hr/yr	0 kg/hr	0.00 MMBtu/hr*	0.0 MMBtu/hr	- gal/yr

*Heat input rate

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory

Emission Unit Description	Type	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	For Form EUD: Maximum Heat Input	For Form EUD: Annual Fuel Use
All Vessels Fuel Tanks								
Fuel Tank	100,000 gallons	N A	NA	2,400 hr/yr	2,880,158 gal/yr*	N A	N A	2,880,158 gal/yr*
					*Max throughput			*Max throughput

Notes:

Seasonal drilling days= 100 Up to 3 jackup events per season

1 1.341 hp/kW; 454g/lb; Break Specific Fuel Consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1).
2 Ultra Low Sulfur Diesel #1 (ULSD): Fuel Heat Content of 132,096 Btu/gal; Density of 0.8094 kg/L; so 6.74 lbs/gal diesel is assumed (Tesoro/Kenai Refinery).
3 Incinerator Fuel Heat Content (Waste) of 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17). Incinerators will burn ULSD for ignition
4 Fuel Consumption has been calculated from Power Output where not available from manufacturer specifications.
5 An equivalent of two main drilling engines at 100% load will operate continuously for up to 4800 hours per season. All four main drilling engines will operate at 100% load for up to 48 hours per season.
6 Mud degassing rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June
7 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 18 times per year).
8 Drill Rig Incinerator Operating Hours (65 tons/season) = (840 ft^3 waste/wk) ÷ (27 ft^3/yd^3) x (14 wks/season) x (300 lbs/yd^3 (EPA factor)) ÷ (2,000 lb/ton);
840 ft3 = 9,333 lbs/week material produced for incineration, 300 lbs/cubic foot density for waste, incinerator same size as on Discoverer (276 bs/hr).
9 OSV & Ware Vessel assume operation of up to 100 hrs/season for open water idling in the 25 mile zone, if weather delays off-loading.
10 Incinerator AP-42 Table 2.1-12 emission factors are for Modular Excess Air Combustors.
11 EPA Ocean Vessel Guidance is "Emission Inventories for Ocean-Going Vessels Using Category 3 Propulsion Engines In or Near the United States" (EPA420-D-07-007, December, 2007) -Table 3-55 Marine Distillate Fuel.
12 EPA Ocean Vessel Guidance (OVG) was used for auxiliary engines. AP-42 Emission Factors were used for propulsion engines. OVG was used for the propulsion engines on the work boats because it was assumed that they would have similar emissions to auxiliary engines due to their small size.
13 AP-42 emission factors were used for the drill rig main engines because it provided higher emissions rates than EPA OVG. OVG was used for the drill rig's cement engines and logging winch because these are new engines which will have emissions similar to marine auxiliary engines.
14 The emissions factors on the spec sheets for the drill rig main engines were used for VOC because they were higher than both AP-42 and OVG, providing a more conservative emissions rate.
15 It is assumed that brake horse power (bhp) is approximately equal to horse power (hp).
16 Emissions (tons) = Hourly Emission Rate (lb/hr) x Allowable Operation (hr/yr) x (1 ton/2000 lb).
17 Per 46 CFR 109.211, each emergency generator is tested at least once each month for at least two hours (8 hours per drilling season). Assume all emergency generators comply with this rule while within the 25 mi radius.
18 For Option 2, OSV Jackup and Jackdown hours are included in the Ware Vessel hours.

Calculations:

Fuel Consumption (gal/hr) = Power Output (hp) x (7,000 Btu/hp-h) ÷ Fuel Heat Content (132,096 Btu/gal)
Fuel Consumption (gal/hr) = Power Output (kW)x (1.3405 hp/kW) x Fuel Consumption Factor (7,000 Btu/hp-h) ÷ Fuel Heat Content (132,096 Btu/gal)
Max Heat Input (MMBtu/hr) = Power Output (kW) x Max Fuel Usage (g/kWh) ÷ (1000 g/Kg) ÷ Fuel Density (0.8094 Kg/L) ÷ (3.78 L/gal) x Fuel Heat Content (132,096 Btu/gal)
Max Heat Input (MMBtu/hr) = Fuel Consumption (gal/hr) x Fuel Heat Content (132,096 Btu/gal)
Max Heat Input (MMBtu/hr) =Fuel Consumption (lb/hr) x Waste Fuel Heat Content (6,203 Btu/lb)

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Annual PTE Options Summary

Option Description		Potential Emissions Totals (tpy)									Method 1	Method 2
		NO_x	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4	CO_{2e}	CO_{2e}
Option 1	**Ware Barge/Tug and 2 OSVs**	223.6	181.7	13.8	22.0	28.3	0.6	0.02	0.03	0.04	40,073	39,640
Option 2	**Ware Vessel (w/ backup AHTS and OSV)**	225.1	182.7	13.9	22.0	28.5	0.6	0.02	0.03	0.04	40,322	39,887

Method 1 Emission Factors were derived from the following sources with preference given respectively: AP-42, API compendimum, EPA Reporting rule factors.
Method 2 Emission Factors were derived from the following sources with preference given respectively: Vendor Equipment Factors, API compendimum, EPA Reporting rule factors.

Devil's Paw Prospect - Annual Emissions Inventory Summary

Option 1 (Ware Barge/Tug and 2 OSV's)

Source Description	Potential Emissions Totals (tpy)								
	NO_X	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4
Drill Rig Equipment	29	46	3	6	13	0.2	0.02	0.009	0.01
Ice Breaker 1	46	53	4	7	6	0.2	0	0.008	0.01
Ice Breaker 2	46	53	4	7	6	0.2	0	0.008	0.01
Anchor Handler Tug Supply Vessel (AHTS)	8	0	0.17	0.11	0.14	0.004	0.000	0.0001	0
Oil Spill Response Vessel 1 (Dedicated OSRV)	56	10	1.1	1	1	0.02	0	0.0003	0
Oil Spill Response Vessel 2	3	1	0.05	0.08	0.1	0.001	0	0.00002	0
Offshore Supply Vessels (OSV1 & OSV2)	25	17	0.8	0.7	1.2	0.02	0	0.0004	0
34' boom work boats - 4	1	0.0	0.03	0.01	0.04	0.001	0	0.00001	0
Marine Research Vessel	9	2	0.2	0.2	0.2	0.004	0	0.00007	0
Spill Storage Tanker	2	0.5	0.08	0.13	0.05	0.009	0	0.00006	0
All Vessels Fuel Tanks	0	0	0	0	0.01	0	0	0	0
Totals	**223.6**	**181.7**	**13.8**	**22.0**	**28.3**	**0.6**	**0.02**	**0.03**	**0.04**

Source Description	Non- OCS Source Emissions (tpy)								
	NO_X	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4
Drill Rig Equipment	0	0	0	0	0	0	0	0	0
Ice Breaker 1	46	53	4	7	6	0.2	0	0.008	0.01
Ice Breaker 2	46	53	4	7	6	0.2	0	0.008	0.01
Anchor Handler Tug Supply Vessel (AHTS)	8	0	0.17	0.11	0.14	0.004	0	0.0001	0
Oil Spill Response Vessel 1 (Dedicated OSRV)	56	10	1.1	1	1	0.02	0	0.0003	0
Oil Spill Response Vessel 2	3	1	0.05	0.1	0.1	0.001	0	0.00002	0
Offshore Supply Vessels (OSV1 & OSV2)	25	17	0.8	0.7	1.2	0.02	0	0.0004	0
34' boom work boats - 4	1	0.0	0.03	0.01	0.04	0.001	0	0.00001	0
Marine Research Vessel	9	2	0.2	0.2	0.2	0.004	0	0.00007	0
Spill Storage Tanker	2	0.5	0.08	0.13	0.05	0.009	0	0.00006	0
All Vessels Fuel Tanks	0	0	0	0	0.01	0	0	0	0
Totals	**195**	**136**	**10**	**16**	**15**	**0.4**	**0.0**	**0.02**	**0.03**

Source Description	OCS Source Emissions (tpy)								
	NO_X	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4
Drill Rig Equipment	29	46	3	6	13	0.2	0.02	0.009	0.01
Ice Breaker 1	0	0	0	0	0	0	0	0	0
Ice Breaker 2	0	0	0	0	0	0	0	0	0
Anchor Handler Tug Supply Vessel (AHTS)	0	0	0	0	0	0	0	0	0
Oil Spill Response Vessel 1 (Dedicated OSRV)	0	0	0	0	0	0	0	0	0
Oil Spill Response Vessel 2	0	0	0	0	0	0	0	0	0
Offshore Supply Vessels (OSV1 & OSV2)	0	0	0	0	0	0	0	0	0
34' boom work boats - 4	0	0	0	0	0	0	0	0	0
Marine Research Vessel	0	0	0	0	0	0	0	0	0
Spill Storage Tanker	0	0	0	0	0	0	0	0	0
All Vessels Fuel Tanks	0	0	0	0	0	0	0	0	0
Totals	**29**	**46**	**3**	**6**	**13**	**0.2**	**0.02**	**0.009**	**0.01**

Devil's Paw Prospect - Annual Emissions Inventory Summary

Option 1 (Ware Barge/Tug and 2 OSV's)

Source Description	Potential Emissions Totals (tpy)							
	Method 1				Method 2			
	CO_2	CH4	N2O	CO_{2e}	CO_2	CH4	N2O	CO_{2e}
Drill Rig Equipment	10340	507	0.09	10873	10212	497	0.1	10779
Ice Breaker 1	11511	0.6	0.1	11554	11368	0.6	0.1	11411
Ice Breaker 2	11511	0.6	0.1	11554	11368	0.6	0.1	11411
Anchor Handler Tug Supply Vessel (AHTS)	393	0	0.00	395	391	0.07	0.003	393
Oil Spill Response Vessel 1 (Dedicated OSRV)	1774	0	0.02	1781	1758	0	0.02	1764
Oil Spill Response Vessel 2	110	0.01	0.001	111	109	0.01	0.001	110
Offshore Supply Vessels (OSV1 & OSV2)	2294	0.2	0.02	2303	2273	0.2	0.02	2283
34' boom work boats - 4	59	0.0	0.001	59	63	0.0	0.001	63
Marine Research Vessel	418	0.0	0.004	420	414	0.0	0.004	416
Spill Storage Tanker	1022	0.007	0.0052	1024	1009	0.007	0.008	1012
All Vessels Fuel Tanks	0	0	0	0	0	0	0	0
Totals	**39431**	**508**	**0.3**	**40073**	**38964**	**498**	**0.3**	**39640**

Source Description	Non- OCS Source Emissions (tpy)							
	Method 1				Method 2			
	CO_2	CH4	N2O	CO_{2e}	CO_2	CH4	N2O	CO_{2e}
Drill Rig Equipment	0	0	0	0	0	0	0	0
Ice Breaker 1	11511	0.6	0.1	11554	11368	0.6	0.1	11411
Ice Breaker 2	11511	0.6	0.1	11554	11368	0.6	0.1	11411
Anchor Handler Tug Supply Vessel (AHTS)	393	0	0.00	395	391	0.07	0.003	393
Oil Spill Response Vessel 1 (Dedicated OSRV)	1774	0	0.02	1781	1758	0	0.02	1764
Oil Spill Response Vessel 2	110	0.01	0.001	111	109	0.01	0.001	110
Offshore Supply Vessels (OSV1 & OSV2)	2294	0.2	0.02	2303	2273	0.2	0.02	2283
34' boom work boats - 4	59	0.0	0.0005	59	63	0.0	0.001	63
Marine Research Vessel	418	0.0	0.004	420	414	0.0	0.004	416
Spill Storage Tanker	1022	0.007	0.0052	1024	1009	0.007	0.008	1012
All Vessels Fuel Tanks	0	0	0	0	0	0	0	0
Totals	**29092**	**2**	**0.2**	**29201**	**28753**	**2**	**0.3**	**28861**

Source Description	OCS Source Emissions (tpy)							
	Method 1				Method 2			
	CO_2	CH4	N2O	CO_{2e}	CO_2	CH4	N2O	CO_{2e}
Drill Rig Equipment	10340	507	0.09	10873	10212	497	0.1	10779
Ice Breaker 1	0	0	0	0	0	0	0	0
Ice Breaker 2	0	0	0	0	0	0	0	0
Anchor Handler Tug Supply Vessel (AHTS)	0	0	0	0	0	0	0	0
Oil Spill Response Vessel 1 (Dedicated OSRV)	0	0	0	0	0	0	0	0
Oil Spill Response Vessel 2	0	0	0	0	0	0	0	0
Offshore Supply Vessels (OSV1 & OSV2)	0	0	0	0	0	0	0	0
34' boom work boats - 4	0	0	0	0	0	0	0	0
Marine Research Vessel	0	0	0	0	0	0	0	0
Spill Storage Tanker	0	0	0	0	0	0	0	0
All Vessels Fuel Tanks	0	0	0	0	0	0	0	0
Totals	**10340**	**507**	**0.09**	**10873**	**10212**	**497**	**0.1**	**10779**

Method 1: Emission Factors were derived from the following sources with preference given respectively: AP-42, API compendimum, EPA Reporting rule factors.

Method 2: Emission Factors were derived from the following sources with preference given respectively: Vendor Equipment Factors, API compendimum, EPA Reporting rule factors.

Devil's Paw Prospect - Annual Emissions Inventory Summary

Option 2 (Ware Vessel w/ 1 OSV & 1 OSV/AUTS)

Source Description	Potential Emissions Totals (tpy)								
	NO_X	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4
Drill Rig Equipment	29	46	3	6	13	0.2	0.02	0.01	0.01
Ice Breaker 1	46	53	4	7	6	0.2	0	0.01	0.01
Ice Breaker 2	46	53	4	7	6	0.2	0	0.01	0.01
Anchor Handler Tug Supply Vessel (AHTS)	8	0	0	0	0	0.00	0	0.0001	0
Oil Spill Response Vessel 1 (Dedicated OSRV)	56	10	1.1	1	1	0.02	0	0.0003	0.00
Oil Spill Response Vessel 2	3	1	0.05	0.1	0.1	0.001	0	0.00002	0.00
Ware Vessel (WV) w/ AHTS and OSV backup	27	18	1	0.7	1	0.02	0	0.0004	0.00
34' boom work boats - 4	1	0.0	0.03	0.01	0.04	0.001	0	0.00001	0.00
Marine Research Vessel	9	2	0.2	0.2	0.2	0.004	0	0.0001	0.00
Spill Storage Tanker	2.2	0.5	0.08	0.13	0.05	0.009	0	0.00006	0.00
All Vessels Fuel Tanks	0	0	0	0	0.01	0	0	0	0.00
Totals	**225.1**	**182.7**	**13.9**	**22.0**	**28.5**	**0.6**	**0.02**	**0.03**	**0.04**

Source Description	Non- OCS Source Emissions (tpy)								
	NO_X	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4
Drill Rig Equipment	0	0	0	0	0	0	0	0	0
Ice Breaker 1	46	53	4	7	6	0.2	0	0.01	0.01
Ice Breaker 2	46	53	4	7	6	0.2	0	0.01	0.01
Anchor Handler Tug Supply Vessel (AHTS)	8	0	0	0	0	0.00	0	0.0001	0
Oil Spill Response Vessel 1 (Dedicated OSRV)	56	10	1.1	1	1	0.02	0	0.0003	0
Oil Spill Response Vessel 2	3	1	0.0	0.1	0.1	0.001	0	0.00002	0
Ware Vessel (WV) w/ AHTS and OSV backup	27	18	0.9	0.7	1.3	0.02	0	0.0004	0
34' boom work boats - 4	1	0.0	0.03	0.01	0.04	0.0006	0	0.00001	0
Marine Research Vessel	9	2	0.2	0.2	0.2	0.004	0	0.00007	0
Spill Storage Tanker	2	0.5	0.08	0.13	0.05	0.0093	0	0.00006	0
All Vessels Fuel Tanks	0	0	0	0	0.01	0	0	0	0
Totals	**196**	**137**	**11**	**16**	**15**	**0.4**	**0**	**0.02**	**0.03**

Source Description	OCS Source Emissions (tpy)								
	NO_X	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4
Drill Rig Equipment	29	46	3	6	13	0.2	0.02	0.01	0.01
Ice Breaker 1	0	0	0	0	0	0	0	0	0
Ice Breaker 2	0	0	0	0	0	0	0	0	0
Anchor Handler Tug Supply Vessel (AHTS)	0	0	0	0	0	0	0	0	0
Oil Spill Response Vessel 1 (Dedicated OSRV)	0	0	0	0	0	0	0	0	0
Oil Spill Response Vessel 2	0	0	0	0	0	0	0	0	0
Ware Vessel (WV) w/ AHTS and OSV backup	0	0	0	0	0	0	0	0	0
34' boom work boats - 4	0	0	0	0	0	0	0	0	0
Marine Research Vessel	0	0	0	0	0	0	0	0	0
Spill Storage Tanker	0	0	0	0	0	0	0	0	0
All Vessels Fuel Tanks	0	0	0	0	0	0	0	0	0
Totals	**29**	**46**	**3**	**6**	**13**	**0.2**	**0.02**	**0.01**	**0.01**

Devil's Paw Prospect - Annual Emissions Inventory Summary

Option 2 (Ware Vessel w/ backup OSV and AHTS)

Source Description	Potential Emissions Totals (tpy)							
	Method 1				Method 2			
	CO_2	CH4	N2O	CO_{2e}	CO_2	CH4	N2O	CO_{2e}
Drill Rig Equipment	10340	507	0.09	10873	10212	497	0.1	10779
Ice Breaker 1	11511	0.6	0.1	11554	11368	0.6	0.1	11411
Ice Breaker 2	11511	0.6	0.1	11554	11368	0.6	0.1	11411
Anchor Handler Tug Supply Vessel (AHTS)	393	0	0.00	395	391	0.07	0.003	393
Oil Spill Response Vessel 1 (Dedicated OSRV)	1774	0	0.02	1781	1758	0	0.02	1764
Oil Spill Response Vessel 2	110	0.01	0.001	111	109	0.01	0.001	110
Ware Vessel (WV) w/ AHTS and OSV backup	2543	0.12	0.02	2552	2520	0.12	0.02	2530
34' boom work boats - 4	59	0.0	0.001	59	63	0.0	0.001	63
Marine Research Vessel	418	0.0	0.004	420	414	0.0	0.004	416
Spill Storage Tanker	1022	0.007	0.0052	1024	1009	0.007	0.008	1012
All Vessels Fuel Tanks	0	0	0	0	0	0	0	0
Totals	**39680**	**508**	**0.3**	**40322**	**39211**	**498**	**0.3**	**39887**

Source Description	Non- OCS Source Emissions (tpy)							
	Method 1				Method 2			
	CO_2	CH4	N2O	CO_{2e}	CO_2	CH4	N2O	CO_{2e}
Drill Rig Equipment	0	0	0	0	0	0	0	0
Ice Breaker 1	11511	0.6	0.1	11554	11368	0.6	0.1	11411
Ice Breaker 2	11511	0.6	0.1	11554	11368	0.6	0.1	11411
Anchor Handler Tug Supply Vessel (AHTS)	393	0	0.00	395	391	0.07	0.003	393
Oil Spill Response Vessel 1 (Dedicated OSRV)	1774	0	0.02	1781	1758	0	0.02	1764
Oil Spill Response Vessel 2	110	0.01	0.001	111	109	0.01	0.001	110
Ware Vessel (WV) w/ AHTS and OSV backup	2543	0.12	0.02	2552	2520	0.12	0.02	2530
34' boom work boats - 4	59	0.0	0.001	59	63	0.0	0.0005	63
Marine Research Vessel	418	0.0	0.004	420	414	0.0	0.004	416
Spill Storage Tanker	1022	0.007	0.0052	1024	1009	0.007	0.0083	1012
All Vessels Fuel Tanks	0	0	0	0	0	0	0	0
Totals	**29341**	**2**	**0.2**	**29450**	**29000**	**1**	**0.3**	**29108**

Source Description	OCS Source Emissions (tpy)							
	Method 1				Method 2			
	CO_2	CH4	N2O	CO_{2e}	CO_2	CH4	N2O	CO_{2e}
Drill Rig Equipment	10340	507	0.1	10873	10212	497	0.1	10779
Ice Breaker 1	0	0	0	0	0	0	0	0
Ice Breaker 2	0	0	0	0	0	0	0	0
Anchor Handler Tug Supply Vessel (AHTS)	0	0	0	0	0	0	0	0
Oil Spill Response Vessel 1 (Dedicated OSRV)	0	0	0	0	0	0	0	0
Oil Spill Response Vessel 2	0	0	0	0	0	0	0	0
Ware Vessel (WV) w/ AHTS and OSV backup	0	0	0	0	0	0	0	0
34' boom work boats - 4	0	0	0	0	0	0	0	0
Marine Research Vessel	0	0	0	0	0	0	0	0
Spill Storage Tanker	0	0	0	0	0	0	0	0
All Vessels Fuel Tanks	0	0	0	0	0	0	0	0
Totals	**10340**	**507**	**0.1**	**10873**	**10212**	**497**	**0.09**	**10779**

Method 1: Emission Factors were derived from the following sources with preference given respectively: AP-42, API compendimum, EPA Reporting rule factors.

Method 2: Emission Factors were derived from the following sources with preference given respectively: Vendor Equipment Factors, API compendimum, EPA Reporting rule factors.

Devil's Paw Prospect - Annual Emissions Inventory - Uncontrolled Emissions Summary

Option 1 - Ware Barge/Tug and 2 OSV's Source Description	Potential Emissions Totals (tpy)								
	NO_X	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4
Drill Rig Equipment	142	46	3	6	13	0.2	0.02	0.009	0.01
Ice Breaker 1	228	53	4	7	6	0.2	0	0.008	0.01
Ice Breaker 2	228	53	4	7	6	0.2	0	0.008	0.01
Anchor Handler Tug Supply Vessel (AHTS)	8	0	0	0	0	0.00	0	0.0001	0
Oil Spill Response Vessel 1 (Dedicated OSRV)	56	10	1	1	1	0.02	0	0.0003	0
Oil Spill Response Vessel 2	3	1	0.0	0.1	0.1	0.001	0	0.00002	0
Offshore Supply Vessels (OSV1 & OSV2)	25	17	0.8	0.7	1.2	0.02	0	0.0004	0
34' boom work boats - 4	1	0.0	0.03	0.01	0.04	0.001	0	0.00001	0
Marine Research Vessel	9	2	0.2	0.2	0.2	0.004	0	0.00007	0
Spill Storage Tanker	2	0.5	0.08	0.13	0.05	0.009	0	0.00006	0
All Vessels Fuel Tanks	0	0	0	0	0.01	0	0	0	0
Totals	**702**	**182**	**14**	**22**	**28**	**0.6**	**0.02**	**0.03**	**0.04**

Option 2 - Ware Vessel (w/ 1 OSV & OSV/AHTSV) Source Description	Potential Emissions Totals (tpy)								
	NO_X	CO	$PM_{10}/PM_{2.5}$	PM	VOC	SO_2	H2S	Pb	H2SO4
Drill Rig Equipment	142	46	3	6	13	0.2	0.02	0.01	0.01
Ice Breaker 1	228	53	4	7	6	0.2	0	0.01	0.01
Ice Breaker 2	228	53	4	7	6	0.2	0	0.01	0.01
Anchor Handler Tug Supply Vessel (AHTS)	8	0	0	0	0	0.00	0	0.0001	0
Oil Spill Response Vessel 1 (Dedicated OSRV)	56	10	1.1	1	1	0.02	0	0.0003	0
Oil Spill Response Vessel 2	3	1	0.0	0.1	0.1	0.001	0	0.00002	0
Ware Vessel (WV) w/ AHTS and OSV backup	27	18	0.9	0.7	1.3	0.02	0	0.0004	0
34' boom work boats - 4	1	0.0	0.03	0.01	0.04	0.001	0	0.00001	0
Marine Research Vessel	9	2	0.2	0.2	0.2	0.004	0	0.00007	0
Spill Storage Tanker	2	0.5	0.08	0.13	0.05	0.009	0	0.00006	0.0
All Vessels Fuel Tanks	0	0	0	0	0.01	0	0	0	0
Totals	**703.1**	**182.7**	**13.9**	**22.0**	**28.5**	**0.6**	**0.02**	**0.03**	**0.04**

Devil's Paw Prospect - Annual Emissions Inventory - Uncontrolled Emissions Summary

Option 1 - Ware Barge/Tug and 2 OSV's Source Description	Potential Emissions Totals (tpy)							
	Method 1				Method 2			
	CO_2	CH4	N2O	CO_{2e}	CO_2	CH4	N2O	CO_{2e}
Drill Rig Equipment	10340	507	0.1	10873	10212	497	0.09	10779
Ice Breaker 1	11511	0.6	0.1	11554	11368	0.57	0.10	11411
Ice Breaker 2	11511	0.6	0.1	11554	11368	0.57	0.10	11411
Anchor Handler Tug Supply Vessel (AHTS)	393	0	0.00	395	391	0.07	0.003	393
Oil Spill Response Vessel 1 (Dedicated OSRV)	1774	0	0.02	1781	1758	0.09	0.015	1764
Oil Spill Response Vessel 2	110	0.0	0.001	111	109	0.006	0.0009	110
Offshore Supply Vessels (OSV1 & OSV2)	2294	0.2	0.02	2303	2273	0.2	0.019	2283
34' boom work boats - 4	59	0.0	0.001	59	63	0.012	0.00053	63
Marine Research Vessel	418	0.0	0.004	420	414	0.038	0.0035	416
Spill Storage Tanker	1022	0.007	0.0052	1024	1009	0.0070	0.00831	1012
All Vessels Fuel Tanks	0	0	0	0	0	0	0	0
Totals	**39431**	**508**	**0.3**	**40073**	**38964**	**498**	**0.3**	**39640**

Option 2 - Ware Vessel (w/ 1 OSV & OSV/AHTSV) Source Description	Potential Emissions Totals (tpy)							
	Method 1				Method 1			
	CO_2	CH4	N2O	CO_{2e}	CO_2	CH4	N2O	CO_{2e}
Drill Rig Equipment	10340	507	0.1	10873	10212	497	0.1	10779
Ice Breaker 1	11511	0.6	0.1	11554	11368	0.6	0.1	11411
Ice Breaker 2	11511	0.6	0.1	11554	11368	0.6	0.1	11411
Anchor Handler Tug Supply Vessel (AHTS)	393	0	0.00	395	391	0.07	0.003	393
Oil Spill Response Vessel 1 (Dedicated OSRV)	1774	0	0.02	1781	1758	0	0.02	1764
Oil Spill Response Vessel 2	110	0.0	0.001	111	109	0.0	0.001	110
Ware Vessel (WV) w/ AHTS and OSV backup	2543	0.1	0.02	2552	2520	0.1	0.02	2530
34' boom work boats - 4	59	0.0	0.0005	59	63	0.0	0.001	63
Marine Research Vessel	418	0.0	0.004	420	414	0.0	0.004	416
Spill Storage Tanker	1022	0.007	0.0052	1024	1009	0.007	0.008	1012
All Vessels Fuel Tanks	0	0	0	0	0	0	0	0.00
Totals	**39680**	**508**	**0.3**	**40322**	**39211**	**498**	**0.3**	**39887**

Method 1: Emission Factors were derived from the following sources with preference given respectively: AP-42, API compendimum, EPA Reporting rule factors.

Method 2: Emission Factors were derived from the following sources with preference given respectively: Vendor Equipment Factors, API compendimum, EPA Reporting rule factors.

Devil's Paw Prospect Emissions Inventory
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Emission Unit Description	Potential NO_X Emissions			Potential CO Emissions			Potential $PM_{10}/PM_{2.5}$ Emissions		
	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Drill Rig Equipment									
Main Drill Rig Engine 1		6.03E+00	6.03E+00		1.13E+01	1.13E+01		7.62E-01	7.62E-01
Main Drill Rig Engine 2		6.03E+00	6.03E+00		1.13E+01	1.13E+01		7.62E-01	7.62E-01
Main Drill Rig Engine 3		5.91E+00	5.91E+00		1.11E+01	1.11E+01		7.48E-01	7.48E-01
Main Drill Rig Engine 4		5.89E+00	5.89E+00		1.10E+01	1.10E+01		7.44E-01	7.44E-01
Emergency Back-up Engine		1.03E+00	1.03E+00		2.73E-01	2.73E-01		1.84E-02	1.84E-02
Cement Engine 1		8.08E-01	8.08E-01		6.39E-02	6.39E-02		1.75E-02	1.75E-02
Cement Engine 2		8.08E-01	8.08E-01		6.39E-02	6.39E-02		1.75E-02	1.75E-02
Logging Winch		7.82E-01	7.82E-01		6.18E-02	6.18E-02		1.69E-02	1.69E-02
Heater 1		6.36E-01	6.36E-01		1.59E-01	1.59E-01		3.43E-02	3.43E-02
Heater 2		6.36E-01	6.36E-01		1.59E-01	1.59E-01		3.43E-02	3.43E-02
Incinerator		9.80E-02	9.80E-02		3.27E-01	3.27E-01		2.29E-01	2.29E-01
Fuel Tank 1		NA	NA		NA	NA		NA	NA
Fuel Tank 2		NA	NA		NA	NA		NA	NA
Mud Degassing		NA	NA		NA	NA		NA	NA
Sub Totals	**0.00E+00**	**2.87E+01**	**2.87E+01**	**0.00E+00**	**4.59E+01**	**4.59E+01**	**0.00E+00**	**3.38E+00**	**3.38E+00**
Ice Breaker 1									
Main Engine 1	1.29E+01		1.29E+01	1.49E+01		1.49E+01	1.09E+00		1.09E+00
Main Engine 2	1.29E+01		1.29E+01	1.49E+01		1.49E+01	1.09E+00		1.09E+00
Main Engine 3	9.70E+00		9.70E+00	1.12E+01		1.12E+01	8.17E-01		8.17E-01
Main Engine 4	9.70E+00		9.70E+00	1.12E+01		1.12E+01	8.17E-01		8.17E-01
Harbor Generator	8.70E-02		8.70E-02	6.88E-03		6.88E-03	1.88E-03		1.88E-03
Emergency Generator	3.68E-02		3.68E-02	2.91E-03		2.91E-03	7.93E-04		7.93E-04
Boiler 1	1.89E-01		1.89E-01	4.73E-02		4.73E-02	1.02E-02		1.02E-02
Boiler 2	1.89E-01		1.89E-01	4.73E-02		4.73E-02	1.02E-02		1.02E-02
Incinerator	8.86E-02		8.86E-02	2.95E-01		2.95E-01	2.07E-01		2.07E-01
Sub Totals	**4.59E+01**	**0.00E+00**	**4.59E+01**	**5.27E+01**	**0.00E+00**	**5.27E+01**	**4.04E+00**	**0.00E+00**	**4.04E+00**
Ice Breaker 2									
Main Engine 1	1.29E+01		1.29E+01	1.49E+01		1.49E+01	1.09E+00		1.09E+00
Main Engine 2	1.29E+01		1.29E+01	1.49E+01		1.49E+01	1.09E+00		1.09E+00
Main Engine 3	9.70E+00		9.70E+00	1.12E+01		1.12E+01	8.17E-01		8.17E-01
Main Engine 4	9.70E+00		9.70E+00	1.12E+01		1.12E+01	8.17E-01		8.17E-01
Harbor Generator	8.70E-02		8.70E-02	6.88E-03		6.88E-03	1.88E-03		1.88E-03
Emergency Generator	3.68E-02		3.68E-02	2.91E-03		2.91E-03	7.93E-04		7.93E-04
Boiler 1	1.89E-01		1.89E-01	4.73E-02		4.73E-02	1.02E-02		1.02E-02
Boiler 2	1.89E-01		1.89E-01	4.73E-02		4.73E-02	1.02E-02		1.02E-02
Incinerator	8.86E-02		8.86E-02	2.95E-01		2.95E-01	2.07E-01		2.07E-01
Sub Totals	**4.59E+01**	**0.00E+00**	**4.59E+01**	**5.27E+01**	**0.00E+00**	**5.27E+01**	**4.04E+00**	**0.00E+00**	**4.04E+00**

Devil's Paw Prospect Emissions Inventory
Annual PTE Detail

Emission Unit Description	Potential NO_X Emissions			Potential CO Emissions			Potential $PM_{10}/PM_{2.5}$ Emissions		
	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Anchor Handler Tug Supply Vessel (AHTS)									
Main Engine 1	2.91E-01		2.91E-01	3.36E-02		3.36E-02	2.45E-03		2.45E-03
Main Engine 2	2.91E-01		2.91E-01	3.36E-02		3.36E-02	2.45E-03		2.45E-03
Tow Winch Engine	4.13E-02		4.13E-02	1.64E-03		1.64E-03	4.46E-04		4.46E-04
Thruster Engine 1	1.09E-01		1.09E-01	1.24E-02		1.24E-02	9.07E-04		9.07E-04
Thruster Engine 2	1.09E-01		1.09E-01	1.24E-02		1.24E-02	9.07E-04		9.07E-04
Generator 1	4.66E+00		4.66E+00	3.66E-01		3.66E-01	9.97E-02		9.97E-02
Generator 2	2.75E+00		2.75E+00	0.00E+00		0.00E+00	5.93E-02		5.93E-02
Emergency Generator	2.52E-02		2.52E-02	2.00E-03		2.00E-03	5.44E-04		5.44E-04
Sub Totals	**8.27E+00**	**0.00E+00**	**8.27E+00**	**4.61E-01**	**0.00E+00**	**4.61E-01**	**1.67E-01**	**0.00E+00**	**1.67E-01**
Oil Spill Response Vessel 1 (Dedicated OSRV)									
Main Engine 1	1.42E+01		1.42E+01	3.76E+00		3.76E+00	2.53E-01		2.53E-01
Main Engine 2	1.42E+01		1.42E+01	3.76E+00		3.76E+00	2.53E-01		2.53E-01
Thruster Engine 1	4.75E-01		4.75E-01	1.09E-01		1.09E-01	1.58E-03		1.58E-03
Thruster Engine 2	4.75E-01		4.75E-01	1.09E-01		1.09E-01	1.44E-03		1.44E-03
Thruster Engine 3	4.75E-01		4.75E-01	1.09E-01		1.09E-01	9.67E-04		9.67E-04
Generator 1	1.30E+01		1.30E+01	1.03E+00		1.03E+00	2.73E-01		2.73E-01
Generator 2	1.30E+01		1.30E+01	1.03E+00		1.03E+00	8.44E-03		8.44E-03
Emergency Generator	2.55E-02		2.55E-02	2.02E-03		2.02E-03	2.73E-01		2.73E-01
Sub Totals	**5.58E+01**	**0.00E+00**	**5.58E+01**	**9.91E+00**	**0.00E+00**	**9.91E+00**	**1.07E+00**	**0.00E+00**	**1.07E+00**
Oil Spill Response Vessel 2									
Main Engine 1	9.83E-01		9.83E-01	2.61E-01		2.61E-01	1.76E-02		1.76E-02
Main Engine 2	9.83E-01		9.83E-01	2.61E-01		2.61E-01	1.76E-02		1.76E-02
Thruster Engine 1	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Thruster Engine 2	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Thruster Engine 3	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Generator 1	3.26E-01		3.26E-01	2.58E-02		2.58E-02	7.04E-03		7.04E-03
Generator 2	3.26E-01		3.26E-01	2.58E-02		2.58E-02	7.04E-03		7.04E-03
Emergency Generator	2.55E-02		2.55E-02	2.02E-03		2.02E-03	0.00E+00		0.00E+00
Sub Totals	**2.64E+00**	**0.00E+00**	**2.64E+00**	**5.76E-01**	**0.00E+00**	**5.76E-01**	**4.93E-02**	**0.00E+00**	**4.93E-02**
Offshore Supply Vessels (OSV1 & OSV2)									
Main Engine 1	4.14E+00		4.14E+00	2.87E+00		2.87E+00	1.40E-01		1.40E-01
Main Engine 2	4.14E+00		4.14E+00	2.87E+00		2.87E+00	1.40E-01		1.40E-01
Thruster Engine 1	4.25E+00		4.25E+00	2.95E+00		2.95E+00	1.29E-01		1.29E-01
Thruster Engine 2	4.25E+00		4.25E+00	2.95E+00		2.95E+00	1.29E-01		1.29E-01
Thruster Engine 3	4.25E+00		4.25E+00	2.95E+00		2.95E+00	1.29E-01		1.29E-01
Generator	2.01E+00		2.01E+00	1.40E+00		1.40E+00	8.37E-02		8.37E-02
Generator	2.01E+00		2.01E+00	1.40E+00		1.40E+00	8.37E-02		8.37E-02
Generator	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Emergency Generator	6.28E-03		6.28E-03	4.36E-03		4.36E-03	2.62E-04		2.62E-04
Sub Totals	**2.50E+01**	**0.00E+00**	**2.50E+01**	**1.74E+01**	**0.00E+00**	**1.74E+01**	**8.35E-01**	**0.00E+00**	**8.35E-01**

Devil's Paw Prospect Emissions Inventory
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Emission Unit Description	Potential NO_X Emissions			Potential CO Emissions			Potential $PM_{10}/PM_{2.5}$ Emissions		
	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Ware Vessel (WV) w/ AHTS and OSV backup									
Main Engine 1	3.50E+00		3.50E+00	2.43E+00		2.43E+00	1.19E-01		1.19E-01
Main Engine 2	3.50E+00		3.50E+00	2.43E+00		2.43E+00	1.19E-01		1.19E-01
Main Engine 3	7.41E+00		7.41E+00	5.15E+00		5.15E+00	2.51E-01		2.51E-01
Main Engine 4	7.41E+00		7.41E+00	5.15E+00		5.15E+00	2.51E-01		2.51E-01
Generator 1	2.36E+00		2.36E+00	1.64E+00		1.64E+00	9.82E-02		9.82E-02
Generator 2	2.36E+00		2.36E+00	1.64E+00		1.64E+00	9.82E-02		9.82E-02
Generator 3	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Emergency Generator	2.08E-02		2.08E-02	1.65E-03		1.65E-03	4.49E-04		4.49E-04
Sub Totals	**2.66E+01**	**0.00E+00**	**2.66E+01**	**1.84E+01**	**0.00E+00**	**1.84E+01**	**9.37E-01**	**0.00E+00**	**9.37E-01**
34' boom work boats - 4									
WB-1 Propulsion Engine 1	7.37E-02		7.37E-02	2.46E-03		2.46E-03	3.55E-03		3.55E-03
WB-1 Propulsion Engine 2	7.37E-02		7.37E-02	2.46E-03		2.46E-03	3.55E-03		3.55E-03
WB-2 Propulsion Engine 1	7.37E-02		7.37E-02	2.46E-03		2.46E-03	3.55E-03		3.55E-03
WB-2 Propulsion Engine 2	7.37E-02		7.37E-02	2.46E-03		2.46E-03	3.55E-03		3.55E-03
WB-3 Propulsion Engine 1	7.37E-02		7.37E-02	2.46E-03		2.46E-03	3.55E-03		3.55E-03
WB-3 Propulsion Engine 2	7.37E-02		7.37E-02	2.46E-03		2.46E-03	3.55E-03		3.55E-03
WB-4 Propulsion Engine 1	7.37E-02		7.37E-02	2.46E-03		2.46E-03	3.55E-03		3.55E-03
WB-4 Propulsion Engine 2	7.37E-02		7.37E-02	2.46E-03		2.46E-03	3.55E-03		3.55E-03
Sub Totals	**5.89E-01**		**5.89E-01**	**1.97E-02**	**0.00E+00**	**1.97E-02**	**2.84E-02**	**0.00E+00**	**2.84E-02**
Marine Research Vessel									
Main Engine	6.12E+00		6.12E+00	1.40E+00		1.40E+00	1.02E-01		1.02E-01
Generator 1	1.24E+00		1.24E+00	9.81E-02		9.81E-02	2.68E-02		2.68E-02
Generator 2	8.27E-01		8.27E-01	6.54E-02		6.54E-02	1.78E-02		1.78E-02
Generator 3	3.67E-01		3.67E-01	2.91E-02		2.91E-02	7.93E-03		7.93E-03
Sub Totals	**8.55E+00**	**0.00E+00**	**8.55E+00**	**1.60E+00**	**0.00E+00**	**1.60E+00**	**1.55E-01**	**0.00E+00**	**1.55E-01**
Spill Storage Tanker									
Main Engine 1	1.10E+00		1.10E+00	2.53E-01		2.53E-01	1.84E-02		1.84E-02
Generator 1	2.66E-01		2.66E-01	6.41E-02		6.41E-02	5.75E-03		5.75E-03
Generator 2	0.00E+00		0.00E+00	2.11E-01		2.11E-01	5.75E-03		5.75E-03
Generator 3	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Emergency Generator	8.44E-01		8.44E-01	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Boiler 1	0.00E+00		0.00E+00	0.00E+00		0.00E+00	4.56E-02		4.56E-02
Boiler 2	0.00E+00		0.00E+00	NA		NA	0.00E+00		0.00E+00
Sub Totals	**2.21E+00**	**0.00E+00**	**2.21E+00**	**5.28E-01**	**0.00E+00**	**5.28E-01**	**7.55E-02**	**0.00E+00**	**7.55E-02**
All Vessels Fuel Tanks									
Fuel Tank	NA		NA	NA		NA	NA		NA
Sub Totals	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**

Devil's Paw Prospect Emissions Inventory
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Emission Unit Description	Potential PM Emissions			Potential VOC Emissions			Potential SO_2 Emissions		
	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Drill Rig Equipment									
Main Drill Rig Engine 1		1.33E+00	1.33E+00		2.33E+00	2.33E+00		2.04E-02	2.04E-02
Main Drill Rig Engine 2		1.33E+00	1.33E+00		2.33E+00	2.33E+00		2.04E-02	2.04E-02
Main Drill Rig Engine 3		1.31E+00	1.31E+00		1.31E+00	1.31E+00		2.00E-02	2.00E-02
Main Drill Rig Engine 4		1.30E+00	1.30E+00		2.25E+00	2.25E+00		1.99E-02	1.99E-02
Emergency Back-up Engine		3.21E-02	3.21E-02		2.63E-02	2.63E-02		4.92E-04	4.92E-04
Cement Engine 1		1.74E-02	1.74E-02		2.32E-02	2.32E-02		3.84E-04	3.84E-04
Cement Engine 2		1.74E-02	1.74E-02		2.32E-02	2.32E-02		3.84E-04	3.84E-04
Logging Winch		1.69E-02	1.69E-02		2.25E-02	2.25E-02		3.67E-04	3.67E-04
Heater 1		6.36E-02	6.36E-02		6.36E-03	6.36E-03		6.43E-03	6.43E-03
Heater 2		6.36E-02	6.36E-02		6.36E-03	6.36E-03		6.43E-03	6.43E-03
Incinerator		2.29E-01	2.29E-01		9.80E-02	9.80E-02		8.17E-02	8.17E-02
Fuel Tank 1		NA	NA		3.18E-03	3.18E-03		NA	NA
Fuel Tank 2		NA	NA		3.18E-03	3.18E-03		NA	NA
Mud Degassing		NA	NA		4.85E+00	4.85E+00		NA	NA
Sub Totals	**0.00E+00**	**5.70E+00**	**5.70E+00**	**0.00E+00**	**1.33E+01**	**1.33E+01**	**0.00E+00**	**1.77E-01**	**1.77E-01**
Ice Breaker 1									
Main Engine 1	1.90E+00		1.90E+00	1.74E+00		1.74E+00	2.91E-02		2.91E-02
Main Engine 2	1.90E+00		1.90E+00	1.74E+00		1.74E+00	2.91E-02		2.91E-02
Main Engine 3	1.43E+00		1.43E+00	1.31E+00		1.31E+00	2.18E-02		2.18E-02
Main Engine 4	1.43E+00		1.43E+00	1.31E+00		1.31E+00	2.18E-02		2.18E-02
Harbor Generator	2.67E-03		2.67E-03	2.50E-03		2.50E-03	4.08E-05		4.08E-05
Emergency Generator	7.93E-04		7.93E-04	1.06E-03		1.06E-03	1.72E-05		1.72E-05
Boiler 1	1.89E-02		1.89E-02	1.89E-03		1.89E-03	1.91E-03		1.91E-03
Boiler 2	1.89E-02		1.89E-02	1.89E-03		1.89E-03	1.91E-03		1.91E-03
Incinerator	2.07E-01		2.07E-01	8.86E-02		8.86E-02	7.38E-02		7.38E-02
Sub Totals	**6.90E+00**	**0.00E+00**	**6.90E+00**	**6.19E+00**	**0.00E+00**	**6.19E+00**	**1.80E-01**	**0.00E+00**	**1.80E-01**
Ice Breaker 2									
Main Engine 1	1.90E+00		1.90E+00	1.74E+00		1.74E+00	2.91E-02		2.91E-02
Main Engine 2	1.90E+00		1.90E+00	1.74E+00		1.74E+00	2.91E-02		2.91E-02
Main Engine 3	1.43E+00		1.43E+00	1.31E+00		1.31E+00	2.18E-02		2.18E-02
Main Engine 4	1.43E+00		1.43E+00	1.31E+00		1.31E+00	2.18E-02		2.18E-02
Harbor Generator	2.67E-03		2.67E-03	2.50E-03		2.50E-03	4.08E-05		4.08E-05
Emergency Generator	1.43E-03		1.43E-03	1.06E-03		1.06E-03	1.72E-05		1.72E-05
Boiler 1	1.89E-02		1.89E-02	1.89E-03		1.89E-03	1.91E-03		1.91E-03
Boiler 2	1.89E-02		1.89E-02	1.89E-03		1.89E-03	1.91E-03		1.91E-03
Incinerator	2.07E-01		2.07E-01	8.86E-02		8.86E-02	7.38E-02		7.38E-02
Sub Totals	**6.90E+00**	**0.00E+00**	**6.90E+00**	**6.19E+00**	**0.00E+00**	**6.19E+00**	**1.80E-01**	**0.00E+00**	**1.80E-01**

Devil's Paw Prospect Emissions Inventory
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Emission Unit Description	Potential PM Emissions			Potential VOC Emissions			Potential SO_2 Emissions		
	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Anchor Handler Tug Supply Vessel (AHTS)									
Main Engine 1	4.28E-03		4.28E-03	3.92E-03		3.92E-03	6.54E-05		6.54E-05
Main Engine 2	4.28E-03		4.28E-03	3.92E-03		3.92E-03	6.54E-05		6.54E-05
Tow Winch Engine	4.46E-04		4.46E-04	5.95E-04		5.95E-04	9.70E-06		9.70E-06
Thruster Engine 1	1.58E-03		1.58E-03	1.45E-03		1.45E-03	2.42E-05		2.42E-05
Thruster Engine 2	1.12E-03		1.12E-03	1.45E-03		1.45E-03	2.42E-05		2.42E-05
Generator 1	9.97E-02		9.97E-02	1.33E-01		1.33E-01	2.17E-03		2.17E-03
Generator 2	0.00E+00		0.00E+00	0.00E+00		0.00E+00	1.29E-03		1.29E-03
Emergency Generator	5.44E-04		5.44E-04	7.26E-04		7.26E-04	1.18E-05		1.18E-05
Sub Totals	**1.12E-01**	**0.00E+00**	**1.12E-01**	**1.45E-01**	**0.00E+00**	**1.45E-01**	**3.66E-03**	**0.00E+00**	**3.66E-03**
Oil Spill Response Vessel 1 (Dedicated OSRV)									
Main Engine 1	4.42E-01		4.42E-01	3.62E-01		3.62E-01	6.77E-03		6.77E-03
Main Engine 2	4.42E-01		4.42E-01	3.62E-01		3.62E-01	6.77E-03		6.77E-03
Thruster Engine 1	1.39E-02		1.39E-02	1.27E-02		1.27E-02	4.22E-05		4.22E-05
Thruster Engine 2	1.39E-02		1.39E-02	1.27E-02		1.27E-02	3.86E-05		3.86E-05
Thruster Engine 3	1.39E-02		1.39E-02	1.27E-02		1.27E-02	2.58E-05		2.58E-05
Generator 1	2.81E-01		2.81E-01	8.33E-02		8.33E-02	1.40E-03		1.40E-03
Generator 2	8.44E-03		8.44E-03	2.58E-03		2.58E-03	1.40E-03		1.40E-03
Emergency Generator	5.50E-04		5.50E-04	8.33E-02		8.33E-02	1.20E-05		1.20E-05
Sub Totals	**1.22E+00**	**0.00E+00**	**1.22E+00**	**9.32E-01**	**0.00E+00**	**9.32E-01**	**1.65E-02**	**0.00E+00**	**1.65E-02**
Oil Spill Response Vessel 2									
Main Engine 1	3.07E-02		3.07E-02	2.52E-02		2.52E-02	4.70E-04		4.70E-04
Main Engine 2	3.07E-02		3.07E-02	2.52E-02		2.52E-02	4.70E-04		4.70E-04
Thruster Engine 1	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Thruster Engine 2	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Thruster Engine 3	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Generator 1	7.04E-03		7.04E-03	2.15E-03		2.15E-03	3.50E-05		3.50E-05
Generator 2	7.04E-03		7.04E-03	2.15E-03		2.15E-03	3.50E-05		3.50E-05
Emergency Generator	5.50E-04		5.50E-04	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Sub Totals	**7.60E-02**	**0.00E+00**	**7.60E-02**	**5.46E-02**	**0.00E+00**	**5.46E-02**	**1.01E-03**	**0.00E+00**	**1.01E-03**
Offshore Supply Vessels (OSV1 & OSV2)									
Main Engine 1	1.15E-01		1.15E-01	2.01E-01		2.01E-01	3.75E-03		3.75E-03
Main Engine 2	1.15E-01		1.15E-01	2.01E-01		2.01E-01	3.75E-03		3.75E-03
Thruster Engine 1	1.18E-01		1.18E-01	1.84E-01		1.84E-01	3.44E-03		3.44E-03
Thruster Engine 2	1.18E-01		1.18E-01	1.84E-01		1.84E-01	3.44E-03		3.44E-03
Thruster Engine 3	1.18E-01		1.18E-01	1.84E-01		1.84E-01	3.44E-03		3.44E-03
Generator	5.58E-02		5.58E-02	1.12E-01		1.12E-01	1.73E-03		1.73E-03
Generator	5.58E-02		5.58E-02	1.12E-01		1.12E-01	1.73E-03		1.73E-03
Generator	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Emergency Generator	2.62E-04		2.62E-04	3.49E-04		3.49E-04	6.47E-06		6.47E-06
Sub Totals	**6.96E-01**	**0.00E+00**	**6.96E-01**	**1.18E+00**	**0.00E+00**	**1.18E+00**	**2.13E-02**	**0.00E+00**	**2.13E-02**

Devil's Paw Prospect Emissions Inventory
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Emission Unit Description	Potential PM Emissions			Potential VOC Emissions			Potential SO_2 Emissions		
	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Ware Vessel (WV) w/ AHTS and OSV backup									
Main Engine 1	9.71E-02		9.71E-02	1.69E-01		1.69E-01	3.17E-03		3.17E-03
Main Engine 2	9.71E-02		9.71E-02	1.69E-01		1.69E-01	3.17E-03		3.17E-03
Main Engine 3	2.06E-01		2.06E-01	3.59E-01		3.59E-01	6.72E-03		6.72E-03
Main Engine 4	2.06E-01		2.06E-01	3.59E-01		3.59E-01	6.72E-03		6.72E-03
Generator 1	6.54E-02		6.54E-02	1.31E-01		1.31E-01	1.91E-03		1.91E-03
Generator 2	6.54E-02		6.54E-02	1.31E-01		1.31E-01	1.91E-03		1.91E-03
Generator 3	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Emergency Generator	4.49E-04		4.49E-04	5.99E-04		5.99E-04	1.04E-05		1.04E-05
Sub Totals	**7.37E-01**	**0.00E+00**	**7.37E-01**	**1.32E+00**	**0.00E+00**	**1.32E+00**	**2.36E-02**	**0.00E+00**	**2.36E-02**
34' boom work boats - 4									
WB-1 Propulsion Engine 1	1.22E-03		1.22E-03	4.73E-03		4.73E-03	7.33E-05		7.33E-05
WB-1 Propulsion Engine 2	1.22E-03		1.22E-03	4.73E-03		4.73E-03	7.33E-05		7.33E-05
WB-2 Propulsion Engine 1	1.22E-03		1.22E-03	4.73E-03		4.73E-03	7.33E-05		7.33E-05
WB-2 Propulsion Engine 2	1.22E-03		1.22E-03	4.73E-03		4.73E-03	7.33E-05		7.33E-05
WB-3 Propulsion Engine 1	1.22E-03		1.22E-03	4.73E-03		4.73E-03	7.33E-05		7.33E-05
WB-3 Propulsion Engine 2	1.22E-03		1.22E-03	4.73E-03		4.73E-03	7.33E-05		7.33E-05
WB-4 Propulsion Engine 1	1.22E-03		1.22E-03	4.73E-03		4.73E-03	7.33E-05		7.33E-05
WB-4 Propulsion Engine 2	1.22E-03		1.22E-03	4.73E-03		4.73E-03	7.33E-05		7.33E-05
Sub Totals	**9.75E-03**	**0.00E+00**	**9.75E-03**	**3.79E-02**	**0.00E+00**	**3.79E-02**	**5.86E-04**	**0.00E+00**	**5.86E-04**
Marine Research Vessel									
Main Engine	1.79E-01		1.79E-01	1.64E-01		1.64E-01	2.73E-03		2.73E-03
Generator 1	2.68E-02		2.68E-02	3.57E-02		3.57E-02	5.82E-04		5.82E-04
Generator 2	1.78E-02		1.78E-02	2.38E-02		2.38E-02	3.88E-04		3.88E-04
Generator 3	7.93E-03		7.93E-03	1.06E-02		1.06E-02	1.72E-04		1.72E-04
Sub Totals	**2.31E-01**	**0.00E+00**	**2.31E-01**	**2.34E-01**	**0.00E+00**	**2.34E-01**	**3.87E-03**	**0.00E+00**	**3.87E-03**
Spill Storage Tanker									
Main Engine 1	3.21E-02		3.21E-02	2.95E-02		2.95E-02	4.92E-04		4.92E-04
Generator 1	8.16E-03		8.16E-03	7.67E-03		7.67E-03	1.25E-04		1.25E-04
Generator 2	8.16E-03		8.16E-03	7.67E-03		7.67E-03	1.25E-04		1.25E-04
Generator 3	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Emergency Generator	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Boiler 1	8.44E-02		8.44E-02	8.44E-03		8.44E-03	8.54E-03		8.54E-03
Boiler 2	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Sub Totals	**1.33E-01**	**0.00E+00**	**1.33E-01**	**5.32E-02**	**0.00E+00**	**5.32E-02**	**9.28E-03**	**0.00E+00**	**9.28E-03**
All Vessels Fuel Tanks									
Fuel Tank	NA		NA	1.47E-02		1.47E-02	NA		NA
Sub Totals	**0.00E+00**	**0.00E+00**	**0.00E+00**	**1.47E-02**	**0.00E+00**	**1.47E-02**	**0.00E+00**	**0.00E+00**	**0.00E+00**

Devil's Paw Prospect Emissions Inventory
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Emission Unit Description	Potential H2S Emissions			Potential Pb Emissions			Potential H2SO4 Emissions		
	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Drill Rig Equipment									
Main Drill Rig Engine 1		NA	NA		3.86E-04	3.86E-04		2.81E-03	2.81E-03
Main Drill Rig Engine 2		NA	NA		7.57E-04	7.57E-04		2.81E-03	2.81E-03
Main Drill Rig Engine 3		NA	NA		3.78E-04	3.78E-04		2.75E-03	2.75E-03
Main Drill Rig Engine 4		NA	NA		3.77E-04	3.77E-04		2.74E-03	2.74E-03
Emergency Back-up Engine		NA	NA		9.32E-06	9.32E-06		NA	NA
Cement Engine 1		NA	NA		7.28E-06	7.28E-06		NA	NA
Cement Engine 2		NA	NA		7.28E-06	7.28E-06		NA	NA
Logging Winch		NA	NA		6.95E-06	6.95E-06		NA	NA
Heater 1		NA	NA		3.78E-05	3.78E-05		NA	NA
Heater 2		NA	NA		3.78E-05	3.78E-05		NA	NA
Incinerator		NA	NA		6.96E-03	6.96E-03		NA	NA
Fuel Tank 1		NA	NA		NA	NA		NA	NA
Fuel Tank 2		NA	NA		NA	NA		NA	NA
Mud Degassing		2.17E-02	2.17E-02		NA	NA		NA	NA
Sub Totals	**0.00E+00**	**2.17E-02**	**2.17E-02**	**0.00E+00**	**8.96E-03**	**8.96E-03**	**0.00E+00**	**1.11E-02**	**1.11E-02**
Ice Breaker 1									
Main Engine 1	NA		NA	5.51E-04		5.51E-04	4.01E-03		4.01E-03
Main Engine 2	NA		NA	5.51E-04		5.51E-04	4.01E-03		4.01E-03
Main Engine 3	NA		NA	4.13E-04		4.13E-04	3.01E-03		3.01E-03
Main Engine 4	NA		NA	4.13E-04		4.13E-04	3.01E-03		3.01E-03
Harbor Generator	NA		NA	7.73E-07		7.73E-07	NA		NA
Emergency Generator	NA		NA	3.27E-07		3.27E-07	NA		NA
Boiler 1	NA		NA	1.12E-05		1.12E-05	NA		NA
Boiler 2	NA		NA	1.12E-05		1.12E-05	NA		NA
Incinerator	NA		NA	6.29E-03		6.29E-03	NA		NA
Sub Totals	**0.00E+00**	**0.00E+00**	**0.00E+00**	**8.24E-03**	**0.00E+00**	**8.24E-03**	**1.40E-02**	**0.00E+00**	**1.40E-02**
Ice Breaker 2									
Main Engine 1	NA		NA	5.51E-04		5.51E-04	4.01E-03		4.01E-03
Main Engine 2	NA		NA	5.51E-04		5.51E-04	4.01E-03		4.01E-03
Main Engine 3	NA		NA	4.13E-04		4.13E-04	3.01E-03		3.01E-03
Main Engine 4	NA		NA	4.13E-04		4.13E-04	3.01E-03		3.01E-03
Harbor Generator	NA		NA	7.73E-07		7.73E-07	NA		NA
Emergency Generator	NA		NA	3.27E-07		3.27E-07	NA		NA
Boiler 1	NA		NA	1.12E-05		1.12E-05	NA		NA
Boiler 2	NA		NA	1.12E-05		1.12E-05	NA		NA
Incinerator	NA		NA	6.29E-03		6.29E-03	NA		NA
Sub Totals	**0.00E+00**	**0.00E+00**	**0.00E+00**	**8.24E-03**	**0.00E+00**	**8.24E-03**	**1.40E-02**	**0.00E+00**	**1.40E-02**

Devil's Paw Prospect Emissions Inventory
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Emission Unit Description	Potential H2S Emissions			Potential Pb Emissions			Potential H2SO4 Emissions		
	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Anchor Handler Tug Supply Vessel (AHTS)									
Main Engine 1	NA		NA	1.24E-06		1.24E-06	NA		NA
Main Engine 2	NA		NA	1.24E-06		1.24E-06	NA		NA
Tow Winch Engine	NA		NA	1.84E-07		1.84E-07	NA		NA
Thruster Engine 1	NA		NA	4.59E-07		4.59E-07	NA		NA
Thruster Engine 2	NA		NA	4.59E-07		4.59E-07	NA		NA
Generator 1	NA		NA	4.11E-05		4.11E-05	NA		NA
Generator 2	NA		NA	2.44E-05		2.44E-05	NA		NA
Emergency Generator	NA		NA	2.24E-07		2.24E-07	NA		NA
Sub Totals	**0.00E+00**	**0.00E+00**	**0.00E+00**	**6.93E-05**	**0.00E+00**	**6.93E-05**	**0.00E+00**	**0.00E+00**	**0.00E+00**
Oil Spill Response Vessel 1 (Dedicated OSRV)									
Main Engine 1	NA		NA	1.28E-04		1.28E-04	NA		NA
Main Engine 2	NA		NA	1.28E-04		1.28E-04	NA		NA
Thruster Engine 1	NA		NA	8.00E-07		8.00E-07	NA		NA
Thruster Engine 2	NA		NA	7.31E-07		7.31E-07	NA		NA
Thruster Engine 3	NA		NA	4.90E-07		4.90E-07	NA		NA
Generator 1	NA		NA	2.65E-05		2.65E-05	NA		NA
Generator 2	NA		NA	2.65E-05		2.65E-05	NA		NA
Emergency Generator	NA		NA	2.27E-07		2.27E-07	NA		NA
Sub Totals	**0.00E+00**	**0.00E+00**	**0.00E+00**	**3.12E-04**	**0.00E+00**	**3.12E-04**	**0.00E+00**	**0.00E+00**	**0.00E+00**
Oil Spill Response Vessel 2									
Main Engine 1	NA		NA	8.91E-06		8.91E-06	NA		NA
Main Engine 2	NA		NA	8.91E-06		8.91E-06	NA		NA
Thruster Engine 1	NA		NA	0.00E+00		0.00E+00	NA		NA
Thruster Engine 2	NA		NA	0.00E+00		0.00E+00	NA		NA
Thruster Engine 3	NA		NA	0.00E+00		0.00E+00	NA		NA
Generator 1	NA		NA	6.63E-07		6.63E-07	NA		NA
Generator 2	NA		NA	6.63E-07		6.63E-07	NA		NA
Emergency Generator	NA		NA	2.27E-07		2.27E-07	NA		NA
Sub Totals	**0.00E+00**	**0.00E+00**	**0.00E+00**	**1.94E-05**	**0.00E+00**	**1.94E-05**	**0.00E+00**	**0.00E+00**	**0.00E+00**
Offshore Supply Vessels (OSV1 & OSV2)									
Main Engine 1	NA		NA	7.10E-05		7.10E-05	NA		NA
Main Engine 2	NA		NA	7.10E-05		7.10E-05	NA		NA
Thruster Engine 1	NA		NA	6.52E-05		6.52E-05	NA		NA
Thruster Engine 2	NA		NA	6.52E-05		6.52E-05	NA		NA
Thruster Engine 3	NA		NA	6.52E-05		6.52E-05	NA		NA
Generator	NA		NA	3.28E-05		3.28E-05	NA		NA
Generator	NA		NA	3.28E-05		3.28E-05	NA		NA
Generator	NA		NA	0.00E+00		0.00E+00	NA		NA
Emergency Generator	NA		NA	1.23E-07		1.23E-07	NA		NA
Sub Totals	**0.00E+00**	**0.00E+00**	**0.00E+00**	**4.03E-04**	**0.00E+00**	**4.03E-04**	**0.00E+00**	**0.00E+00**	**0.00E+00**

Devil's Paw Prospect Emissions Inventory
Annual PTE Detail

Emission Unit Description	Potential H2S Emissions			Potential Pb Emissions			Potential H2SO4 Emissions		
	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
Ware Vessel (WV) w/ AHTS and OSV backup									
Main Engine 1	NA		NA	6.00E-05		6.00E-05	NA		NA
Main Engine 2	NA		NA	6.00E-05		6.00E-05	NA		NA
Main Engine 3	NA		NA	1.27E-04		1.27E-04	NA		NA
Main Engine 4	NA		NA	1.27E-04		1.27E-04	NA		NA
Generator 1	NA		NA	3.62E-05		3.62E-05	NA		NA
Generator 2	NA		NA	3.62E-05		3.62E-05	NA		NA
Generator 3	NA		NA	0.00E+00		0.00E+00	NA		NA
Emergency Generator	NA		NA	1.96E-07		1.96E-07	NA		NA
Sub Totals	**0.00E+00**	**0.00E+00**	**0.00E+00**	**4.47E-04**	**0.00E+00**	**4.47E-04**	**0.00E+00**	**0.00E+00**	**0.00E+00**
34' boom work boats - 4									
WB-1 Propulsion Engine 1	NA		NA	1.39E-06		1.39E-06	NA		NA
WB-1 Propulsion Engine 2	NA		NA	1.39E-06		1.39E-06	NA		NA
WB-2 Propulsion Engine 1	NA		NA	1.39E-06		1.39E-06	NA		NA
WB-2 Propulsion Engine 2	NA		NA	1.39E-06		1.39E-06	NA		NA
WB-3 Propulsion Engine 1	NA		NA	1.39E-06		1.39E-06	NA		NA
WB-3 Propulsion Engine 2	NA		NA	1.39E-06		1.39E-06	NA		NA
WB-4 Propulsion Engine 1	NA		NA	1.39E-06		1.39E-06	NA		NA
WB-4 Propulsion Engine 2	NA		NA	1.39E-06		1.39E-06	NA		NA
Sub Totals	**0.00E+00**	**0.00E+00**	**0.00E+00**	**1.11E-05**	**0.00E+00**	**1.11E-05**	**0.00E+00**	**0.00E+00**	**0.00E+00**
Marine Research Vessel									
Main Engine	NA		NA	5.18E-05		5.18E-05	NA		NA
Generator 1	NA		NA	1.10E-05		1.10E-05	NA		NA
Generator 2	NA		NA	7.35E-06		7.35E-06	NA		NA
Generator 3	NA		NA	3.27E-06		3.27E-06	NA		NA
Sub Totals	**0.00E+00**	**0.00E+00**	**0.00E+00**	**7.34E-05**	**0.00E+00**	**7.34E-05**	**0.00E+00**	**0.00E+00**	**0.00E+00**
Spill Storage Tanker									
Main Engine 1	NA		NA	9.32E-06		9.32E-06	NA		NA
Generator 1	NA		NA	2.37E-06		2.37E-06	NA		NA
Generator 2	NA		NA	2.37E-06		2.37E-06	NA		NA
Generator 3	NA		NA	0.00E+00		0.00E+00	NA		NA
Emergency Generator	NA		NA	0.00E+00		0.00E+00	NA		NA
Boiler 1	NA		NA	5.02E-05		5.02E-05	NA		NA
Boiler 2	NA		NA	0.00E+00		0.00E+00	NA		NA
Sub Totals	**0.00E+00**	**0.00E+00**	**0.00E+00**	**6.42E-05**	**0.00E+00**	**6.42E-05**	**0.00E+00**	**0.00E+00**	**0.00E+00**
All Vessels Fuel Tanks									
Fuel Tank	NA		NA	NA		NA	NA		NA
Sub Totals	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**

Devil's Paw Prospect Emissions Inventory
Annual PTE Detail

Emission Unit Description	Potential CO_2 Emissions			Potential CH4 Emissions			Potential N2O Emissions			Potential CO_{2e} Emissions		
	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
	Method 1											
Drill Rig Equipment												
Main Drill Rig Engine 1		2.20E+03	2.20E+03		2.26E+00	2.26E+00		1.86E-02	1.86E-02		2.20E+03	2.20E+03
Main Drill Rig Engine 2		2.20E+03	2.20E+03		2.26E+00	2.26E+00		1.86E-02	1.86E-02		2.20E+03	2.20E+03
Main Drill Rig Engine 3		2.15E+03	2.15E+03		2.22E+00	2.22E+00		1.82E-02	1.82E-02		2.16E+03	2.16E+03
Main Drill Rig Engine 4		2.14E+03	2.14E+03		2.21E+00	2.21E+00		1.81E-02	1.81E-02		2.15E+03	2.15E+03
Emergency Back-up Engine		5.30E+01	5.30E+01		5.46E-02	5.46E-02		4.48E-04	4.48E-04		5.32E+01	5.32E+01
Cement Engine 1		3.86E+01	3.86E+01		1.69E-01	1.69E-01		4.61E-05	4.61E-05		3.88E+01	3.88E+01
Cement Engine 2		3.86E+01	3.86E+01		1.69E-01	1.69E-01		4.61E-05	4.61E-05		3.88E+01	3.88E+01
Logging Winch		3.93E+01	3.93E+01		1.60E-01	1.60E-01		3.34E-04	3.34E-04		3.96E+01	3.96E+01
Heater 1		7.09E+02	7.09E+02		3.47E-02	3.47E-02		3.50E-03	3.50E-03		7.10E+02	7.10E+02
Heater 2		7.09E+02	7.09E+02		3.47E-02	3.47E-02		3.50E-03	3.50E-03		7.10E+02	7.10E+02
Incinerator		6.44E+01	6.44E+01		5.99E-01	5.99E-01		3.74E-03	3.74E-03		6.61E+01	6.61E+01
Fuel Tank 1		NA	NA		NA	NA		NA	NA		0.00E+00	0.00E+00
Fuel Tank 2		NA	NA		NA	NA		NA	NA		0.00E+00	0.00E+00
Mud Degassing		NA	NA		4.96E+02	4.96E+02		NA	NA		4.96E+02	4.96E+02
Sub Totals	**0.00E+00**	**1.03E+04**	**1.03E+04**	**0.00E+00**	**5.07E+02**	**5.07E+02**	**0.00E+00**	**8.51E-02**	**8.51E-02**	**0.00E+00**	**1.09E+04**	**1.09E+04**
Ice Breaker 1												
Main Engine 1	3.15E+03		3.15E+03	1.72E-01		1.72E-01	2.65E-02		2.65E-02	3.16E+03		3.16E+03
Main Engine 2	3.15E+03		3.15E+03	1.72E-01		1.72E-01	2.65E-02		2.65E-02	3.16E+03		3.16E+03
Main Engine 3	2.36E+03		2.36E+03	1.29E-01		1.29E-01	1.99E-02		1.99E-02	2.37E+03		2.37E+03
Main Engine 4	2.36E+03		2.36E+03	1.29E-01		1.29E-01	1.99E-02		1.99E-02	2.37E+03		2.37E+03
Harbor Generator	4.42E+00		4.42E+00	2.42E-04		2.42E-04	3.72E-05		3.72E-05	4.43E+00		4.43E+00
Emergency Generator	1.85E+00		1.85E+00	3.58E-04		3.58E-04	1.57E-05		1.57E-05	1.86E+00		1.86E+00
Boiler 1	2.11E+02		2.11E+02	4.91E-04		4.91E-04	1.54E-06		1.54E-06	2.11E+02		2.11E+02
Boiler 2	2.11E+02		2.11E+02	4.91E-04		4.91E-04	1.54E-06		1.54E-06	2.11E+02		2.11E+02
Incinerator	5.82E+01		5.82E+01	2.58E-02		2.58E-02	3.39E-03		3.39E-03	5.98E+01		5.98E+01
Sub Totals	**1.15E+04**	**0.00E+00**	**1.15E+04**	**6.30E-01**	**0.00E+00**	**6.30E-01**	**9.63E-02**	**0.00E+00**	**9.63E-02**	**1.16E+04**	**0.00E+00**	**1.16E+04**
Ice Breaker 2												
Main Engine 1	3.15E+03		3.15E+03	1.72E-01		1.72E-01	2.65E-02		2.65E-02	3.16E+03		3.16E+03
Main Engine 2	3.15E+03		3.15E+03	1.72E-01		1.72E-01	2.65E-02		2.65E-02	3.16E+03		3.16E+03
Main Engine 3	2.36E+03		2.36E+03	1.29E-01		1.29E-01	1.99E-02		1.99E-02	2.37E+03		2.37E+03
Main Engine 4	2.36E+03		2.36E+03	1.29E-01		1.29E-01	1.99E-02		1.99E-02	2.37E+03		2.37E+03
Harbor Generator	4.42E+00		4.42E+00	2.42E-04		2.42E-04	3.72E-05		3.72E-05	4.43E+00		4.43E+00
Emergency Generator	1.85E+00		1.85E+00	3.58E-04		3.58E-04	1.57E-05		1.57E-05	1.86E+00		1.86E+00
Boiler 1	2.11E+02		2.11E+02	4.91E-04		4.91E-04	1.54E-06		1.54E-06	2.11E+02		2.11E+02
Boiler 2	2.11E+02		2.11E+02	4.91E-04		4.91E-04	1.54E-06		1.54E-06	2.11E+02		2.11E+02
Incinerator	5.82E+01		5.82E+01	2.58E-02		2.58E-02	3.39E-03		3.39E-03	5.98E+01		5.98E+01
Sub Totals	**1.15E+04**	**0.00E+00**	**1.15E+04**	**6.30E-01**	**0.00E+00**	**6.30E-01**	**9.63E-02**	**0.00E+00**	**9.63E-02**	**1.16E+04**	**0.00E+00**	**1.16E+04**

Devil's Paw Prospect Emissions Inventory
Annual PTE Detail

Emission Unit Description	Potential CO_2 Emissions			Potential CH4 Emissions			Potential N2O Emissions			Potential CO_{2e} Emissions		
	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
	Method 1											
Anchor Handler Tug Supply Vessel (AHTS)												
Main Engine 1	7.08E+00		7.08E+00	3.88E-04		3.88E-04	5.96E-05		5.96E-05	7.11E+00		7.11E+00
Main Engine 2	7.08E+00		7.08E+00	3.88E-04		3.88E-04	5.96E-05		5.96E-05	7.11E+00		7.11E+00
Tow Winch Engine	1.04E+00		1.04E+00	2.01E-04		2.01E-04	8.84E-06		8.84E-06	1.05E+00		1.05E+00
Thruster Engine 1	2.60E+00		2.60E+00	5.03E-04		5.03E-04	2.21E-05		2.21E-05	2.62E+00		2.62E+00
Thruster Engine 2	2.60E+00		2.60E+00	5.03E-04		5.03E-04	2.21E-05		2.21E-05	2.62E+00		2.62E+00
Generator 1	2.33E+02		2.33E+02	4.45E-02		4.45E-02	1.96E-03		1.96E-03	2.34E+02		2.34E+02
Generator 2	1.38E+02		1.38E+02	2.67E-02		2.67E-02	1.17E-03		1.17E-03	1.39E+02		1.39E+02
Emergency Generator	1.27E+00		1.27E+00	2.45E-04		2.45E-04	1.08E-05		1.08E-05	1.28E+00		1.28E+00
Sub Totals	**3.93E+02**	**0.00E+00**	**3.93E+02**	**7.35E-02**	**0.00E+00**	**7.35E-02**	**3.31E-03**	**0.00E+00**	**3.31E-03**	**3.95E+02**	**0.00E+00**	**3.95E+02**
Oil Spill Response Vessel 1 (Dedicated OSRV)												
Main Engine 1	7.30E+02		7.30E+02	3.58E-02		3.58E-02	6.17E-03		6.17E-03	7.32E+02		7.32E+02
Main Engine 2	7.30E+02		7.30E+02	3.58E-02		3.58E-02	6.17E-03		6.17E-03	7.32E+02		7.32E+02
Thruster Engine 1	4.55E+00		4.55E+00	2.23E-04		2.23E-04	3.85E-05		3.85E-05	4.57E+00		4.57E+00
Thruster Engine 2	4.16E+00		4.16E+00	2.04E-04		2.04E-04	3.52E-05		3.52E-05	4.17E+00		4.17E+00
Thruster Engine 3	2.79E+00		2.79E+00	1.37E-04		1.37E-04	2.36E-05		2.36E-05	2.80E+00		2.80E+00
Generator 1	1.51E+02		1.51E+02	7.41E-03		7.41E-03	1.28E-03		1.28E-03	1.51E+02		1.51E+02
Generator 2	1.51E+02		1.51E+02	7.41E-03		7.41E-03	1.28E-03		1.28E-03	1.51E+02		1.51E+02
Emergency Generator	1.28E+00		1.28E+00	2.48E-04		2.48E-04	1.09E-05		1.09E-05	1.29E+00		1.29E+00
Sub Totals	**1.77E+03**	**0.00E+00**	**1.77E+03**	**8.73E-02**	**0.00E+00**	**8.73E-02**	**1.50E-02**	**0.00E+00**	**1.50E-02**	**1.78E+03**	**0.00E+00**	**1.78E+03**
Oil Spill Response Vessel 2												
Main Engine 1	5.07E+01		5.07E+01	2.49E-03		2.49E-03	4.28E-04		4.28E-04	5.09E+01		5.09E+01
Main Engine 2	5.07E+01		5.07E+01	2.49E-03		2.49E-03	4.28E-04		4.28E-04	5.09E+01		5.09E+01
Thruster Engine 1	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Thruster Engine 2	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Thruster Engine 3	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Generator 1	3.77E+00		3.77E+00	1.85E-04		1.85E-04	3.19E-05		3.19E-05	3.79E+00		3.79E+00
Generator 2	3.77E+00		3.77E+00	1.85E-04		1.85E-04	3.19E-05		3.19E-05	3.79E+00		3.79E+00
Emergency Generator	1.28E+00		1.28E+00	2.48E-04		2.48E-04	1.09E-05		1.09E-05	1.29E+00		1.29E+00
Sub Totals	**1.10E+02**	**0.00E+00**	**1.10E+02**	**5.59E-03**	**0.00E+00**	**5.59E-03**	**9.32E-04**	**0.00E+00**	**9.32E-04**	**1.11E+02**	**0.00E+00**	**1.11E+02**
Offshore Supply Vessels (OSV1 & OSV2)												
Main Engine 1	4.04E+02		4.04E+02	1.98E-02		1.98E-02	3.42E-03		3.42E-03	4.05E+02		4.05E+02
Main Engine 2	4.04E+02		4.04E+02	1.98E-02		1.98E-02	3.42E-03		3.42E-03	4.05E+02		4.05E+02
Thruster Engine 1	3.71E+02		3.71E+02	1.82E-02		1.82E-02	3.13E-03		3.13E-03	3.72E+02		3.72E+02
Thruster Engine 2	3.71E+02		3.71E+02	1.82E-02		1.82E-02	3.13E-03		3.13E-03	3.72E+02		3.72E+02
Thruster Engine 3	3.71E+02		3.71E+02	1.82E-02		1.82E-02	3.13E-03		3.13E-03	3.72E+02		3.72E+02
Generator	1.86E+02		1.86E+02	3.62E-02		3.62E-02	1.58E-03		1.58E-03	1.88E+02		1.88E+02
Generator	1.86E+02		1.86E+02	3.62E-02		3.62E-02	1.58E-03		1.58E-03	1.88E+02		1.88E+02
Generator	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Emergency Generator	6.97E-01		6.97E-01	1.35E-04		1.35E-04	5.90E-06		5.90E-06	7.02E-01		7.02E-01
Sub Totals	**2.29E+03**	**0.00E+00**	**2.29E+03**	**1.67E-01**	**0.00E+00**	**1.67E-01**	**1.94E-02**	**0.00E+00**	**1.94E-02**	**2.30E+03**	**0.00E+00**	**2.30E+03**

Devil's Paw Prospect Emissions Inventory
Annual PTE Detail

Emission Unit Description	Potential CO_2 Emissions			Potential CH4 Emissions			Potential N2O Emissions			Potential CO_{2e} Emissions		
	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
	Method 1											
Ware Vessel (WV) w/ AHTS and OSV backup												
Main Engine 1	3.41E+02		3.41E+02	1.68E-02		1.68E-02	2.89E-03		2.89E-03	3.43E+02		3.43E+02
Main Engine 2	3.41E+02		3.41E+02	1.68E-02		1.68E-02	2.89E-03		2.89E-03	3.43E+02		3.43E+02
Main Engine 3	7.24E+02		7.24E+02	3.55E-02		3.55E-02	6.12E-03		6.12E-03	7.26E+02		7.26E+02
Main Engine 4	7.24E+02		7.24E+02	3.55E-02		3.55E-02	6.12E-03		6.12E-03	7.26E+02		7.26E+02
Generator 1	2.06E+02		2.06E+02	1.01E-02		1.01E-02	1.74E-03		1.74E-03	2.07E+02		2.07E+02
Generator 2	2.06E+02		2.06E+02	1.01E-02		1.01E-02	1.74E-03		1.74E-03	2.07E+02		2.07E+02
Generator 3	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Emergency Generator	1.04E+00		1.04E+00	2.16E-04		2.16E-04	9.44E-06		9.44E-06	1.05E+00		1.05E+00
Sub Totals	**2.54E+03**	**0.00E+00**	**2.54E+03**	**1.25E-01**	**0.00E+00**	**1.25E-01**	**2.15E-02**	**0.00E+00**	**2.15E-02**	**2.55E+03**	**0.00E+00**	**2.55E+03**
34' boom work boats - 4												
WB-1 Propulsion Engine 1	7.37E+00		7.37E+00	1.53E-03		1.53E-03	6.68E-05		6.68E-05	7.43E+00		7.43E+00
WB-1 Propulsion Engine 2	7.37E+00		7.37E+00	1.53E-03		1.53E-03	6.68E-05		6.68E-05	7.43E+00		7.43E+00
WB-2 Propulsion Engine 1	7.37E+00		7.37E+00	1.53E-03		1.53E-03	6.68E-05		6.68E-05	7.43E+00		7.43E+00
WB-2 Propulsion Engine 2	7.37E+00		7.37E+00	1.53E-03		1.53E-03	6.68E-05		6.68E-05	7.43E+00		7.43E+00
WB-3 Propulsion Engine 1	7.37E+00		7.37E+00	1.53E-03		1.53E-03	6.68E-05		6.68E-05	7.43E+00		7.43E+00
WB-3 Propulsion Engine 2	7.37E+00		7.37E+00	1.53E-03		1.53E-03	6.68E-05		6.68E-05	7.43E+00		7.43E+00
WB-4 Propulsion Engine 1	7.37E+00		7.37E+00	1.53E-03		1.53E-03	6.68E-05		6.68E-05	7.43E+00		7.43E+00
WB-4 Propulsion Engine 2	7.37E+00		7.37E+00	1.53E-03		1.53E-03	6.68E-05		6.68E-05	7.43E+00		7.43E+00
Sub Totals	**5.90E+01**	**0.00E+00**	**5.90E+01**	**1.23E-02**	**0.00E+00**	**1.23E-02**	**5.34E-04**	**0.00E+00**	**5.34E-04**	**5.94E+01**	**0.00E+00**	**5.94E+01**
Marine Research Vessel												
Main Engine	2.96E+02		2.96E+02	1.62E-02		1.62E-02	2.49E-03		2.49E-03	2.97E+02		2.97E+02
Generator 1	6.24E+01		6.24E+01	1.21E-02		1.21E-02	5.30E-04		5.30E-04	6.29E+01		6.29E+01
Generator 2	4.16E+01		4.16E+01	8.05E-03		8.05E-03	3.53E-04		3.53E-04	4.19E+01		4.19E+01
Generator 3	1.85E+01		1.85E+01	3.58E-03		3.58E-03	1.57E-04		1.57E-04	1.86E+01		1.86E+01
Sub Totals	**4.18E+02**	**0.00E+00**	**4.18E+02**	**3.99E-02**	**0.00E+00**	**3.99E-02**	**3.53E-03**	**0.00E+00**	**3.53E-03**	**4.20E+02**	**0.00E+00**	**4.20E+02**
Spill Storage Tanker												
Main Engine 1	5.33E+01		5.33E+01	2.91E-03		2.91E-03	4.49E-04		4.49E-04	5.35E+01		5.35E+01
Generator 1	1.35E+01		1.35E+01	7.40E-04		7.40E-04	8.50E-05		8.50E-05	1.36E+01		1.36E+01
Generator 2	1.35E+01		1.35E+01	7.40E-04		7.40E-04	4.64E-03		4.64E-03	1.50E+01		1.50E+01
Generator 3	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Emergency Generator	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Boiler 1	9.41E+02		9.41E+02	2.20E-03		2.20E-03	0.00E+00		0.00E+00	9.41E+02		9.41E+02
Boiler 2	0.00E+00		0.00E+00	0.00E+00		0.00E+00	NA		0.00E+00	0.00E+00		0.00E+00
Sub Totals	**1.02E+03**	**0.00E+00**	**1.02E+03**	**6.59E-03**	**0.00E+00**	**6.59E-03**	**5.18E-03**	**0.00E+00**	**5.18E-03**	**1.02E+03**	**0.00E+00**	**1.02E+03**
All Vessels Fuel Tanks												
Fuel Tank	NA		NA	NA		0.00E+00	NA		0.00E+00	0.00E+00		0.00E+00
Sub Totals	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**

Devil's Paw Prospect Emissions Inventory
Annual PTE Detail

Emission Unit Description	Potential CO_2 Emissions			Potential CH4 Emissions			Potential N2O Emissions			Potential CO_{2e} Emissions		
	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
	Method 2											
Drill Rig Equipment												
Main Drill Rig Engine 1		2.17E+03	2.17E+03		1.14E-01	1.14E-01		1.86E-02	1.86E-02		2.18E+03	2.18E+03
Main Drill Rig Engine 2		2.17E+03	2.17E+03		1.14E-01	1.14E-01		1.86E-02	1.86E-02		2.18E+03	2.18E+03
Main Drill Rig Engine 3		2.13E+03	2.13E+03		1.11E-01	1.11E-01		1.82E-02	1.82E-02		2.17E+03	2.17E+03
Main Drill Rig Engine 4		2.12E+03	2.12E+03		1.11E-01	1.11E-01		1.81E-02	1.81E-02		2.13E+03	2.13E+03
Emergency Back-up Engine		5.09E+01	5.09E+01		2.76E-03	2.76E-03		4.48E-04	4.48E-04		5.11E+01	5.11E+01
Cement Engine 1		4.13E+01	4.13E+01		8.03E-03	8.03E-03		4.61E-05	4.61E-05		4.15E+01	4.15E+01
Cement Engine 2		4.13E+01	4.13E+01		8.03E-03	8.03E-03		4.61E-05	4.61E-05		4.15E+01	4.15E+01
Logging Winch		4.17E+01	4.17E+01		7.66E-03	7.66E-03		3.34E-04	3.34E-04		4.20E+01	4.20E+01
Heater 1		6.87E+02	6.87E+02		1.65E-03	1.65E-03		5.86E-03	5.86E-03		6.89E+02	6.89E+02
Heater 2		6.87E+02	6.87E+02		1.65E-03	1.65E-03		5.86E-03	5.86E-03		6.89E+02	6.89E+02
Incinerator		8.09E+01	8.09E+01		2.85E-02	2.85E-02		3.74E-03	3.74E-03		8.26E+01	8.26E+01
Fuel Tank 1		NA	0.00E+00		NA	0.00E+00		NA	0.00E+00		0.00E+00	0.00E+00
Fuel Tank 2		NA	0.00E+00		NA	0.00E+00		NA	0.00E+00		0.00E+00	0.00E+00
Mud Degassing		NA	0.00E+00		4.96E+02	4.96E+02		NA	0.00E+00		4.96E+02	4.96E+02
Sub Totals	**0.00E+00**	**1.02E+04**	**1.02E+04**	**0.00E+00**	**4.97E+02**	**4.97E+02**	**0.00E+00**	**8.98E-02**	**8.98E-02**	**0.00E+00**	**1.08E+04**	**1.08E+04**
Ice Breaker 1												
Main Engine 1	3.11E+03		3.11E+03	1.54E-01		1.54E-01	2.65E-02		2.65E-02	3.12E+03		3.12E+03
Main Engine 2	3.11E+03		3.11E+03	1.54E-01		1.54E-01	2.65E-02		2.65E-02	3.12E+03		3.12E+03
Main Engine 3	2.33E+03		2.33E+03	1.15E-01		1.15E-01	1.99E-02		1.99E-02	2.34E+03		2.34E+03
Main Engine 4	2.33E+03		2.33E+03	1.15E-01		1.15E-01	1.99E-02		1.99E-02	2.34E+03		2.34E+03
Harbor Generator	4.36E+00		4.36E+00	2.16E-04		2.16E-04	3.72E-05		3.72E-05	4.38E+00		4.38E+00
Emergency Generator	1.84E+00		1.84E+00	3.60E-04		3.60E-04	1.57E-05		1.57E-05	1.85E+00		1.85E+00
Boiler 1	2.04E+02		2.04E+02	4.91E-04		4.91E-04	1.74E-03		1.74E-03	2.05E+02		2.05E+02
Boiler 2	2.04E+02		2.04E+02	4.91E-04		4.91E-04	1.74E-03		1.74E-03	2.05E+02		2.05E+02
Incinerator	7.31E+01		7.31E+01	2.58E-02		2.58E-02	3.39E-03		3.39E-03	7.47E+01		7.47E+01
Sub Totals	**1.14E+04**	**0.00E+00**	**1.14E+04**	**5.66E-01**	**0.00E+00**	**5.66E-01**	**9.97E-02**	**0.00E+00**	**9.97E-02**	**1.14E+04**	**0.00E+00**	**1.14E+04**
Ice Breaker 2												
Main Engine 1	3.11E+03		3.11E+03	1.54E-01		1.54E-01	2.65E-02		2.65E-02	3.12E+03		3.12E+03
Main Engine 2	3.11E+03		3.11E+03	1.54E-01		1.54E-01	2.65E-02		2.65E-02	3.12E+03		3.12E+03
Main Engine 3	2.33E+03		2.33E+03	1.15E-01		1.15E-01	1.99E-02		1.99E-02	2.34E+03		2.34E+03
Main Engine 4	2.33E+03		2.33E+03	1.15E-01		1.15E-01	1.99E-02		1.99E-02	2.34E+03		2.34E+03
Harbor Generator	4.36E+00		4.36E+00	2.16E-04		2.16E-04	3.72E-05		3.72E-05	4.38E+00		4.38E+00
Emergency Generator	1.84E+00		1.84E+00	3.60E-04		3.60E-04	1.57E-05		1.57E-05	1.85E+00		1.85E+00
Boiler 1	2.04E+02		2.04E+02	4.91E-04		4.91E-04	1.74E-03		1.74E-03	2.05E+02		2.05E+02
Boiler 2	2.04E+02		2.04E+02	4.91E-04		4.91E-04	1.74E-03		1.74E-03	2.05E+02		2.05E+02
Incinerator	7.31E+01		7.31E+01	2.58E-02		2.58E-02	3.39E-03		3.39E-03	7.47E+01		7.47E+01
Sub Totals	**1.14E+04**	**0.00E+00**	**1.14E+04**	**5.66E-01**	**0.00E+00**	**5.66E-01**	**9.97E-02**	**0.00E+00**	**9.97E-02**	**1.14E+04**	**0.00E+00**	**1.14E+04**

Devil's Paw Prospect Emissions Inventory
Annual PTE Detail

Emission Unit Description	Potential CO_2 Emissions			Potential CH4 Emissions			Potential N2O Emissions			Potential CO_{2e} Emissions		
	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
	Method 2											
Anchor Handler Tug Supply Vessel (AHTS)												
Main Engine 1	6.99E+00		6.99E+00	3.46E-04		3.46E-04	5.96E-05		5.96E-05	7.02E+00		7.02E+00
Main Engine 2	6.99E+00		6.99E+00	3.46E-04		3.46E-04	5.96E-05		5.96E-05	7.02E+00		7.02E+00
Tow Winch Engine	1.04E+00		1.04E+00	2.03E-04		2.03E-04	8.84E-06		8.84E-06	1.04E+00		1.04E+00
Thruster Engine 1	2.59E+00		2.59E+00	5.07E-04		5.07E-04	2.21E-05		2.21E-05	2.61E+00		2.61E+00
Thruster Engine 2	2.59E+00		2.59E+00	5.07E-04		5.07E-04	2.21E-05		2.21E-05	2.61E+00		2.61E+00
Generator 1	2.32E+02		2.32E+02	4.53E-02		4.53E-02	1.97E-03		1.97E-03	2.33E+02		2.33E+02
Generator 2	1.38E+02		1.38E+02	2.69E-02		2.69E-02	1.17E-03		1.17E-03	1.39E+02		1.39E+02
Emergency Generator	1.26E+00		1.26E+00	2.47E-04		2.47E-04	1.08E-05		1.08E-05	1.27E+00		1.27E+00
Sub Totals	**3.91E+02**	**0.00E+00**	**3.91E+02**	**7.44E-02**	**0.00E+00**	**7.44E-02**	**3.33E-03**	**0.00E+00**	**3.33E-03**	**3.93E+02**	**0.00E+00**	**3.93E+02**
Oil Spill Response Vessel 1 (Dedicated OSRV)												
Main Engine 1	7.23E+02		7.23E+02	3.58E-02		3.58E-02	6.17E-03		6.17E-03	7.26E+02		7.26E+02
Main Engine 2	7.23E+02		7.23E+02	3.58E-02		3.58E-02	6.17E-03		6.17E-03	7.26E+02		7.26E+02
Thruster Engine 1	4.51E+00		4.51E+00	2.23E-04		2.23E-04	3.85E-05		3.85E-05	4.53E+00		4.53E+00
Thruster Engine 2	4.12E+00		4.12E+00	2.04E-04		2.04E-04	3.52E-05		3.52E-05	4.14E+00		4.14E+00
Thruster Engine 3	2.76E+00		2.76E+00	1.37E-04		1.37E-04	2.36E-05		2.36E-05	2.77E+00		2.77E+00
Generator 1	1.50E+02		1.50E+02	7.41E-03		7.41E-03	1.28E-03		1.28E-03	1.50E+02		1.50E+02
Generator 2	1.50E+02		1.50E+02	7.41E-03		7.41E-03	1.28E-03		1.28E-03	1.50E+02		1.50E+02
Emergency Generator	1.28E+00		1.28E+00	2.50E-04		2.50E-04	1.09E-05		1.09E-05	1.71E-02		1.71E-02
Sub Totals	**1.76E+03**	**0.00E+00**	**1.76E+03**	**8.73E-02**	**0.00E+00**	**8.73E-02**	**1.50E-02**	**0.00E+00**	**1.50E-02**	**1.76E+03**	**0.00E+00**	**1.76E+03**
Oil Spill Response Vessel 2												
Main Engine 1	5.02E+01		5.02E+01	2.49E-03		2.49E-03	4.28E-04		4.28E-04	5.04E+01		5.04E+01
Main Engine 2	5.02E+01		5.02E+01	2.49E-03		2.49E-03	4.28E-04		4.28E-04	5.04E+01		5.04E+01
Thruster Engine 1	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Thruster Engine 2	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Thruster Engine 3	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Generator 1	3.74E+00		3.74E+00	1.85E-04		1.85E-04	3.19E-05		3.19E-05	3.75E+00		3.75E+00
Generator 2	3.74E+00		3.74E+00	1.85E-04		1.85E-04	3.19E-05		3.19E-05	3.75E+00		3.75E+00
Emergency Generator	1.28E+00		1.28E+00	2.50E-04		2.50E-04	1.09E-05		1.09E-05	1.29E+00		1.29E+00
Sub Totals	**1.09E+02**	**0.00E+00**	**1.09E+02**	**5.60E-03**	**0.00E+00**	**5.60E-03**	**9.32E-04**	**0.00E+00**	**9.32E-04**	**1.10E+02**	**0.00E+00**	**1.10E+02**
Offshore Supply Vessels (OSV1 & OSV2)												
Main Engine 1	4.00E+02		4.00E+02	1.98E-02		1.98E-02	3.42E-03		3.42E-03	4.02E+02		4.02E+02
Main Engine 2	4.00E+02		4.00E+02	1.98E-02		1.98E-02	3.42E-03		3.42E-03	4.02E+02		4.02E+02
Thruster Engine 1	3.67E+02		3.67E+02	1.82E-02		1.82E-02	3.13E-03		3.13E-03	3.69E+02		3.69E+02
Thruster Engine 2	3.67E+02		3.67E+02	1.82E-02		1.82E-02	3.13E-03		3.13E-03	3.69E+02		3.69E+02
Thruster Engine 3	3.67E+02		3.67E+02	1.82E-02		1.82E-02	3.13E-03		3.13E-03	3.69E+02		3.69E+02
Generator	1.85E+02		1.85E+02	3.62E-02		3.62E-02	1.58E-03		1.58E-03	1.86E+02		1.86E+02
Generator	1.85E+02		1.85E+02	3.62E-02		3.62E-02	1.58E-03		1.58E-03	1.86E+02		1.86E+02
Generator	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Emergency Generator	6.91E-01		6.91E-01	1.35E-04		1.35E-04	5.90E-06		5.90E-06	6.96E-01		6.96E-01
Sub Totals	**2.27E+03**	**0.00E+00**	**2.27E+03**	**1.67E-01**	**0.00E+00**	**1.67E-01**	**1.94E-02**	**0.00E+00**	**1.94E-02**	**2.28E+03**	**0.00E+00**	**2.28E+03**

Devil's Paw Prospect Emissions Inventory
Annual PTE Detail

Emission Unit Description	Potential CO_2 Emissions			Potential CH4 Emissions			Potential N2O Emissions			Potential CO_{2e} Emissions		
	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total	Propulsion	Non-Prop.	Total
	Method 2											
Ware Vessel (WV) w/ AHTS and OSV backup												
Main Engine 1	3.38E+02		3.38E+02	1.68E-02		1.68E-02	2.89E-03		2.89E-03	3.40E+02		3.40E+02
Main Engine 2	3.38E+02		3.38E+02	1.68E-02		1.68E-02	2.89E-03		2.89E-03	3.40E+02		3.40E+02
Main Engine 3	7.17E+02		7.17E+02	3.55E-02		3.55E-02	6.12E-03		6.12E-03	7.20E+02		7.20E+02
Main Engine 4	7.17E+02		7.17E+02	3.55E-02		3.55E-02	6.12E-03		6.12E-03	7.20E+02		7.20E+02
Generator 1	2.04E+02		2.04E+02	1.01E-02		1.01E-02	1.74E-03		1.74E-03	2.05E+02		2.05E+02
Generator 2	2.04E+02		2.04E+02	1.01E-02		1.01E-02	1.74E-03		1.74E-03	2.05E+02		2.05E+02
Generator 3	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Emergency Generator	1.11E+00		1.11E+00	2.16E-04		2.16E-04	9.44E-06		9.44E-06	1.11E+00		1.11E+00
Sub Totals	**2.52E+03**	**0.00E+00**	**2.52E+03**	**1.25E-01**	**0.00E+00**	**1.25E-01**	**2.15E-02**	**0.00E+00**	**2.15E-02**	**2.53E+03**	**0.00E+00**	**2.53E+03**
34' boom work boats - 4												
WB-1 Propulsion Engine 1	7.83E+00		7.83E+00	1.53E-03		1.53E-03	6.68E-05		6.68E-05	7.88E+00		7.88E+00
WB-1 Propulsion Engine 2	7.83E+00		7.83E+00	1.53E-03		1.53E-03	6.68E-05		6.68E-05	7.88E+00		7.88E+00
WB-2 Propulsion Engine 1	7.83E+00		7.83E+00	1.53E-03		1.53E-03	6.68E-05		6.68E-05	7.88E+00		7.88E+00
WB-2 Propulsion Engine 2	7.83E+00		7.83E+00	1.53E-03		1.53E-03	6.68E-05		6.68E-05	7.88E+00		7.88E+00
WB-3 Propulsion Engine 1	7.83E+00		7.83E+00	1.53E-03		1.53E-03	6.68E-05		6.68E-05	7.88E+00		7.88E+00
WB-3 Propulsion Engine 2	7.83E+00		7.83E+00	1.53E-03		1.53E-03	6.68E-05		6.68E-05	7.88E+00		7.88E+00
WB-4 Propulsion Engine 1	7.83E+00		7.83E+00	1.53E-03		1.53E-03	6.68E-05		6.68E-05	7.88E+00		7.88E+00
WB-4 Propulsion Engine 2	7.83E+00		7.83E+00	1.53E-03		1.53E-03	6.68E-05		6.68E-05	7.88E+00		7.88E+00
Sub Totals	**6.26E+01**	**0.00E+00**	**6.26E+01**	**1.23E-02**	**0.00E+00**	**1.23E-02**	**5.34E-04**	**0.00E+00**	**5.34E-04**	**6.31E+01**	**0.00E+00**	**6.31E+01**
Marine Research Vessel												
Main Engine	2.92E+02		2.92E+02	1.45E-02		1.45E-02	2.49E-03		2.49E-03	2.93E+02		2.93E+02
Generator 1	6.21E+01		6.21E+01	1.22E-02		1.22E-02	5.30E-04		5.30E-04	6.26E+01		6.26E+01
Generator 2	4.14E+01		4.14E+01	8.11E-03		8.11E-03	3.53E-04		3.53E-04	4.17E+01		4.17E+01
Generator 3	1.84E+01		1.84E+01	3.60E-03		3.60E-03	1.57E-04		1.57E-04	1.85E+01		1.85E+01
Sub Totals	**4.14E+02**	**0.00E+00**	**4.14E+02**	**3.83E-02**	**0.00E+00**	**3.83E-02**	**3.53E-03**	**0.00E+00**	**3.53E-03**	**4.16E+02**	**0.00E+00**	**4.16E+02**
Spill Storage Tanker												
Main Engine 1	7.05E+01		7.05E+01	3.49E-03		3.49E-03	4.49E-04		4.49E-04	7.07E+01		7.07E+01
Generator 1	1.34E+01		1.34E+01	6.61E-04		6.61E-04	8.50E-05		8.50E-05	1.34E+01		1.34E+01
Generator 2	1.34E+01		1.34E+01	6.61E-04		6.61E-04	7.78E-03		7.78E-03	1.58E+01		1.58E+01
Generator 3	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Emergency Generator	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00	0.00E+00		0.00E+00
Boiler 1	9.12E+02		9.12E+02	2.20E-03		2.20E-03	0.00E+00		0.00E+00	9.12E+02		9.12E+02
Boiler 2	0.00E+00		0.00E+00	0.00E+00		0.00E+00	NA		0.00E+00	0.00E+00		0.00E+00
Sub Totals	**1.01E+03**	**0.00E+00**	**1.01E+03**	**7.01E-03**	**0.00E+00**	**7.01E-03**	**8.31E-03**	**0.00E+00**	**8.31E-03**	**1.01E+03**	**0.00E+00**	**1.01E+03**
All Vessels Fuel Tanks												
Fuel Tank	NA		0.00E+00	NA		0.00E+00	NA		0.00E+00	0.00E+00		0.00E+00
Sub Totals	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Nitrogen Oxides

Emission Unit Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential NOx Emissions Hourly Emission Rate	Potential NOx Emissions Annual Emission Rate
Drill Rig Equipment										
Main Drill Rig Engine 1	2480 kW	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	1.83 g/kWh	Wartsila SCR spec	c	10.0 lb/hr	5.9 tpy
Main Drill Rig Engine 1	2480 kW	Preload	15 hr/yr	217 g/kWh	1,249 kW	1.83 g/kWh	Wartsila SCR spec	c	5.0 lb/hr	0.038 tpy
Main Drill Rig Engine 1	2480 kW	Preload Hold & Discharge	9 hr/yr	358 g/kWh	256 kW	1.83 g/kWh	Wartsila SCR spec	c	1.0 lb/hr	0.005 tpy
Main Drill Rig Engine 1	2480 kW	Jackup to Final Air Gap	3 hr/yr	221 g/kWh	999 kW	1.83 g/kWh	Wartsila SCR spec	c	4.0 lb/hr	0.006 tpy
Main Drill Rig Engine 1	2480 kW	Prepare for Drilling	18 hr/yr	205.8 g/kWh	2,480 kW	1.83 g/kWh	Wartsila SCR spec	c	10.0 lb/hr	0.090 tpy
Main Drill Rig Engine 2	2480 kW	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	1.83 g/kWh	Wartsila SCR spec	c	10.0 lb/hr	5.9 tpy
Main Drill Rig Engine 2	2480 kW	Preload	15 hr/yr	217 g/kWh	1,249 kW	1.83 g/kWh	Wartsila SCR spec	c	5.0 lb/hr	0.038 tpy
Main Drill Rig Engine 2	2480 kW	Preload Hold & Discharge	9 hr/yr	358 g/kWh	256 kW	1.83 g/kWh	Wartsila SCR spec	c	1.0 lb/hr	0.005 tpy
Main Drill Rig Engine 2	2480 kW	Jackup to Final Air Gap	3 hr/yr	221 g/kWh	999 kW	1.83 g/kWh	Wartsila SCR spec	c	4.0 lb/hr	0.006 tpy
Main Drill Rig Engine 2	2480 kW	Prepare for Drilling	18 hr/yr	205.8 g/kWh	2,480 kW	1.83 g/kWh	Wartsila SCR spec	c	10.0 lb/hr	0.090 tpy
Main Drill Rig Engine 3	2480 kW	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	1.83 g/kWh	Wartsila SCR spec	c	10.0 lb/hr	5.9 tpy
Main Drill Rig Engine 3	2480 kW	Preload	15 hr/yr	358 g/kWh	256 kW	1.83 g/kWh	Wartsila SCR spec	c	1.0 lb/hr	0.008 tpy
Main Drill Rig Engine 3	2480 kW	Preload Hold & Discharge	9 hr/yr	358 g/kWh	256 kW	1.83 g/kWh	Wartsila SCR spec	c	1.0 lb/hr	0.005 tpy
Main Drill Rig Engine 3	2480 kW	Jackup to Final Air Gap	3 hr/yr	221 g/kWh	999 kW	1.83 g/kWh	Wartsila SCR spec	c	4.0 lb/hr	0.006 tpy
Main Drill Rig Engine 4	2480 kW	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	1.83 g/kWh	Wartsila SCR spec	c	10.0 lb/hr	5.9 tpy
Emergency Back-up Engine	968 kW	Drilling mode	75 hr/yr	205 g/kWh	968 kW	3.2 lb/MMBtu	AP-42, Table 3.4-1 (10/1996)	k	27.4 lb/hr	1.03 tpy
Cement Engine 1	403 kW	Drilling mode	131 hr/yr	29 gal/hr	403 kW	13.9 g/kWh	EPA Ocean Vessel Guidance	c	12.3 lb/hr	0.81 tpy
Cement Engine 2	403 kW	Drilling mode	131 hr/yr	29 gal/hr	403 kW	13.9 g/kWh	EPA Ocean Vessel Guidance	c	12.3 lb/hr	0.81 tpy
Logging Winch	187 kW	Drilling mode	273 hr/yr	13 gal/hr	187 kW	13.9 g/kWh	EPA Ocean Vessel Guidance	c	5.7 lb/hr	0.78 tpy
Heater 1	3.5 MMBtu/hr*	Drilling mode	2,400 hr/yr	26 gal/hr	3.5 MMBtu/hr*	20 lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	g	0.5 lb/hr	0.64 tpy
Heater 2	3.5 MMBtu/hr*	Drilling mode	2,400 hr/yr	26 gal/hr	3.5 MMBtu/hr*	20 lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	g	0.5 lb/hr	0.64 tpy
Incinerator	N A	Drilling mode	65 tons/yr	276 lbs/hr	N A	3 lbs/ton	AP-42, Table 2.1-12 (10/1996)	a	0.1 lb/hr	0.1 tpy
Fuel Tank 1	N A	Drilling mode	2,400 hrs/yr	470,220 gal/yr**	N A	NA	NA		NA	NA
Fuel Tank 2	N A	Drilling mode	2,400 hrs/yr	470,220 gal/yr**	N A	NA	NA		NA	NA
Mud Degassing	20000 scf/day	Drilling mode	100 days/yr	NA	20,000 scf/day	NA	NA		NA	NA
				**Max throughput	*Heat input rate					
Ice Breaker 1										
Main Engine 1	7500 kW	Cruising	675 hr/yr	426 gal/hr	8,046 hp	2.9 g/kWh	Design Spec	d	38.3 lb/hr	12.94 tpy
Main Engine 2	7500 kW	Cruising	675 hr/yr	426 gal/hr	8,046 hp	2.9 g/kWh	Design Spec	d	38.3 lb/hr	12.94 tpy
Main Engine 3	7500 kW	Cruising	675 hr/yr	320 gal/hr	6,035 hp	2.9 g/kWh	Design Spec	d	28.8 lb/hr	9.70 tpy
Main Engine 4	7500 kW	Cruising	675 hr/yr	320 gal/hr	6,035 hp	2.9 g/kWh	Design Spec	d	28.8 lb/hr	9.70 tpy
Harbor Generator	952.11 hp	Cruising	8 hr/yr	50 gal/hr	952 hp	13.9 g/kWh	EPA Ocean Vessel Guidance	d	21.7 lb/hr	0.09 tpy
Emergency Generator	402.3 hp	Cruising	8 hr/yr	21 gal/hr	402 hp	13.9 g/kWh	EPA Ocean Vessel Guidance	d	9.2 lb/hr	0.04 tpy
Boiler 1	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	20 lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	b	0.6 lb/hr	0.19 tpy
Boiler 2	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	20 lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	b	0.6 lb/hr	0.19 tpy
Incinerator	N A	Cruising	675 hr/yr	175 lb/hr	N A	3 lbs/ton	AP-42, Table 2.1-12 (10/1996)	a	0.3 lb/hr	0.1 tpy
					*Heat input rate					
Ice Breaker 2										
Main Engine 1	7500 kW	Cruising	675 hr/yr	426 gal/hr	8,046 hp	2.9 g/kW-h	Design Spec	d	38.3 lb/hr	12.94 tpy
Main Engine 2	7500 kW	Cruising	675 hr/yr	426 gal/hr	8,046 hp	2.9 g/kW-h	Design Spec	d	38.3 lb/hr	12.94 tpy
Main Engine 3	7500 kW	Cruising	675 hr/yr	320 gal/hr	6,035 hp	2.9 g/kW-h	Design Spec	d	28.8 lb/hr	9.70 tpy
Main Engine 4	7500 kW	Cruising	675 hr/yr	320 gal/hr	6,035 hp	2.9 g/kW-h	Design Spec	d	28.8 lb/hr	9.70 tpy
Harbor Generator	952.11 hp	Cruising	8 hr/yr	50 gal/hr	952 hp	13.9 g/kW-h	EPA Ocean Vessel Guidance	d	21.7 lb/hr	0.09 tpy
Emergency Generator	402.3 hp	Cruising	8 hr/yr	21 gal/hr	402 hp	13.9 g/kW-h	EPA Ocean Vessel Guidance	d	9.2 lb/hr	0.04 tpy
Boiler 1	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	20 lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	b	0.6 lb/hr	0.19 tpy
Boiler 2	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	20 lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	b	0.6 lb/hr	0.19 tpy
Incinerator	N A	Cruising	675 hr/yr	175 lb/hr	N A	3 lbs/ton	AP-42, Table 2.1-12 (10/1996)	a	0.3 lb/hr	0.1 tpy

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Nitrogen Oxides

Emission Unit Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential NOx Emissions Hourly Emission Rate	Potential NOx Emissions Annual Emission Rate
Anchor Handler Tug Supply Vessel (AHTS)										
Main Engine 1	2710 kW	Cruising	hr/yr	99 gal/hr	1,400 kW	0.024 lb/hp-hr	AP-42, Table 3.4-1 (10/1996)	e	45.0 lb/hr	1.8E-03 tpy
Main Engine 2	2710 kW	Cruising	0.08 hr/yr	99 gal/hr	1400 kW	0.024 lb/hp-hr	AP-42, Table 3.4-1 (10/1996)	e	45 lb/hr	1.8E-03 tpy
Main Engine 1	2710 kW	Mooring Assist	18 hr/yr	71 gal/hr	1000 kW	0.024 lb/hp-hr	AP-42, Table 3.4-1 (10/1996)	e	32 lb/hr	0.29 tpy
Main Engine 2	2710 kW	Mooring Assist	18 hr/yr	71 gal/hr	1000 kW	0.024 lb/hp-hr	AP-42, Table 3.4-1 (10/1996)	e	32 lb/hr	0.29 tpy
Tow Winch Engine	750 kW	Mooring Assist	18 hr/yr	11 gal/hr	150 kW	13.9 g/kW-h	EPA Ocean Vessel Guidance	c	5 lb/hr	0.04 tpy
Thruster Engine 1	750 kW	Mooring Assist	18 hr/yr	27 gal/hr	375 kW	0.024 lb/hp-hr	AP-42, Table 3.4-1 (10/1996)	e	12 lb/hr	0.11 tpy
Thruster Engine 2	750 kW	Mooring Assist	18 hr/yr	27 gal/hr	375 kW	0.024 lb/hp-hr	AP-42, Table 3.4-1 (10/1996)	e	12 lb/hr	0.11 tpy
Generator 1	500 kW	Anchored	1196 hr/yr	18 gal/hr	250 kW	13.9 g/kW-h	EPA Ocean Vessel Guidance	c	8 lb/hr	4.58 tpy
Generator 1	500 kW	Mooring Assist	18 hr/yr	21 gal/hr	300 kW	13.9 g/kW-h	EPA Ocean Vessel Guidance	c	9 lb/hr	0.08 tpy
Generator 1	500 kW	Cruising	0.08 hr/yr	18 gal/hr	250 kW	13.9 g/kW-h	EPA Ocean Vessel Guidance	c	8 lb/hr	0.00 tpy
Generator 2	500 kW	DP	1196 hr/yr	11 gal/hr	150 kW	13.9 g/kW-h	EPA Ocean Vessel Guidance	c	5 lb/hr	2.75 tpy
Emergency Generator	205.89 kW	Non-propulsion	8 hr/yr	20 gal/hr	276 hp	13.9 g/kW-h	EPA Ocean Vessel Guidance	d	6 lb/hr	0.03 tpy
					*Heat input rate					
Oil Spill Response Vessel 1 (Dedicated OSRV)										
Main Engine 1	3070 bhp	Cruising	864 hr/yr	77.5 gal/hr	-- --	3.2 lb/MMBtu	AP-42, Table 3.4-1 (10/1996)	j	32.8 lb/hr	14.15 tpy
Main Engine 2	3070 bhp	Cruising	864 hr/yr	77.5 gal/hr	-- --	3.2 lb/MMBtu	AP-42, Table 3.4-1 (10/1996)	j	32.8 lb/hr	14.15 tpy
Thruster Engine 1	1100 hp	Laying Boom	36 hr/yr	11.6 gal/hr	-- --	0.024 lb/hp-hr	AP-42, Table 3.4-1 (10/1996)	e	26.4 lb/hr	0.48 tpy
Thruster Engine 2	1100 hp	Laying Boom	36 hr/yr	10.6 gal/hr	-- --	0.024 lb/hp-hr	AP-42, Table 3.4-1 (10/1996)	e	26.4 lb/hr	0.48 tpy
Thruster Engine 3	1100 hp	Laying Boom	36 hr/yr	7.1 gal/hr	-- --	0.024 lb/hp-hr	AP-42, Table 3.4-1 (10/1996)	e	26.4 lb/hr	0.48 tpy
Generator 1	710 kW	Cruising/DP/Anchored	1,164 hr/yr	11.54 gal/hr	-- --	13.9 g/kWh	EPA Ocean Vessel Guidance	c	21.7 lb/hr	12.65 tpy
Generator 1	710 kW	Laying Boom	36 hr/yr	11.54 gal/hr	-- --	13.9 g/kWh	EPA Ocean Vessel Guidance	c	21.7 lb/hr	0.39 tpy
Generator 2	710 kW	Cruising/DP	1164 hr/yr	11.54 gal/hr	-- --	13.9 g/kWh	EPA Ocean Vessel Guidance	c	21.7 lb/hr	12.65 tpy
Generator 2	710 kW	Laying Boom	36 hr/yr	11.54 gal/hr	-- --	13.9 g/kWh	EPA Ocean Vessel Guidance	c	21.7 lb/hr	0.39 tpy
Emergency Generator	279 hp	Cruising/DP	8 hr/yr	15 gal/hr	279 hp	13.9 g/kWh	EPA Ocean Vessel Guidance	d	6.4 lb/hr	0.03 tpy
Oil Spill Response Vessel 2										
Main Engine 1	3070 bhp	Cruising	60 hr/yr	77.5 gal/hr	-- --	3.2 lb/MMBtu	AP-42, Table 3.4-1 (10/1996)	j	32.8 lb/hr	0.98 tpy
Main Engine 2	3070 bhp	Cruising	60 hr/yr	77.5 gal/hr	-- --	3.2 lb/MMBtu	AP-42, Table 3.4-1 (10/1996)	j	32.8 lb/hr	0.98 tpy
Thruster Engine 1	1100 hp	Cruising	- hr/yr	- gal/hr	-- --	0.024 lb/hp-h	AP-42, Table 3.4-1	e	0 lb/hr	0.00 tpy
Thruster Engine 2	1100 hp	Cruising	- hr/yr	- gal/hr	-- --	0.024 lb/hp-h	AP-42, Table 3.4-1	e	0 lb/hr	0.00 tpy
Thruster Engine 3	1100 hp	Cruising	- hr/yr	- gal/hr	-- --	0.024 lb/hp-h	AP-42, Table 3.4-1	e	0 lb/hr	0.00 tpy
Generator 1	710 kW	Cruising/DP	30 hr/yr	11.54 gal/hr	-- --	13.9 g/kWh	EPA Ocean Vessel Guidance	c	21.7 lb/hr	0.33 tpy
Generator 2	710 kW	Cruising/DP	30 hr/yr	11.54 gal/hr	-- --	13.9 g/kWh	EPA Ocean Vessel Guidance	c	21.7 lb/hr	0.33 tpy
Emergency Generator	279 hp	Cruising/DP	8 hr/yr	15 gal/hr	279 hp	13.9 g/kWh	EPA Ocean Vessel Guidance	d	6.4 lb/hr	0.03 tpy

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Emission Unit Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential NOx Emissions Hourly Emission Rate	Potential NOx Emissions Annual Emission Rate
Offshore Supply Vessels (OSV1 & OSV2)										
Main Engine 1	3151 hp	Cruising	378 hr/yr	75 gal/hr	-- --	7.2 g/kWh	Hornbeck spec sheet Tier 2	h	16.6 lb/hr	3.14 tpy
Main Engine 1	3151 hp	Idling	133 hr/yr	67 gal/hr	-- --	7.2 g/kWh	Hornbeck spec sheet Tier 2	h	15.0 lb/hr	1.0 tpy
Main Engine 2	3151 hp	Cruising	378 hr/yr	75 gal/hr	-- --	7.2 g/kWh	Hornbeck spec sheet Tier 2	h	16.6 lb/hr	3.14 tpy
Main Engine 2	3151 hp	Idling	133 hr/yr	67 gal/hr	-- --	7.2 g/kWh	Hornbeck spec sheet Tier 2	h	15.0 lb/hr	1.0 tpy
Thruster Engine 1	950 hp	DP	756 hr/yr	45 gal/hr	950 bhp	7.2 g/kWh	Hornbeck spec sheet Tier 2	d	11.2 lb/hr	4.25 tpy
Thruster Engine 2	950 hp	DP	756 hr/yr	45 gal/hr	950 bhp	7.2 g/kWh	Hornbeck spec sheet Tier 2	d	11.2 lb/hr	4.25 tpy
Thruster Engine 3	950 hp	DP	756 hr/yr	45 gal/hr	950 bhp	7.2 g/kWh	Hornbeck spec sheet Tier 2	d	11.2 lb/hr	4.25 tpy
Generator	400 kW	Cruising/DP/Idle	634 hr/yr	27 gal/hr	400 kW	7.2 g/kWh	Hornbeck spec sheet Tier 2	d	6.3 lb/hr	2.01 tpy
Generator	400 kW	Cruising/DP/Idle	634 hr/yr	27 gal/hr	400 kW	7.2 g/kWh	Hornbeck spec sheet Tier 2	d	6.3 lb/hr	2.01 tpy
Generator	400 kW	Cruising/DP/Idle	0 hr/yr	27 gal/hr	400 kW	7.2 g/kWh	Hornbeck spec sheet Tier 2	i	0 lb/hr	0.00 tpy
Emergency Generator	99 kW	Cruising/DP/Idle	8 hr/yr	8 gal/hr	99 kW	7.2 g/kWh	Hornbeck spec sheet Tier 2	d	1.6 lb/hr	0.01 tpy
Ware Vessel (WV) w/ AHTS and OSV backup										
Main Engine 1	2387.2 kW	Cruising	360 hr/yr	87 gal/hr	-- --	7.2 g/kWh	Hornbeck spec sheet Tier 2	h	19.4 lb/hr	3.50 tpy
Main Engine 2	2387.2 kW	Cruising	360 hr/yr	87 gal/hr	-- --	7.2 g/kWh	Hornbeck spec sheet Tier 2	h	19.4 lb/hr	3.50 tpy
Main Engine 3	2387.2 kW	DP/Idling	820 hr/yr	81 gal/hr	-- --	7.2 g/kWh	Hornbeck spec sheet Tier 2	h	18.1 lb/hr	7.41 tpy
Main Engine 4	2387.2 kW	DP/Idling	820 hr/yr	81 gal/hr	-- --	7.2 g/kWh	Hornbeck spec sheet Tier 2	h	18.1 lb/hr	7.41 tpy
Generator 1	503.54 kW	Cruising/DP/Idling	590 hr/yr	32 gal/hr	504 kW	7.2 g/kWh	Hornbeck spec sheet Tier 2	c	8.0 lb/hr	2.36 tpy
Generator 2	503.54 kW	Cruising/DP/Idling	590 hr/yr	32 gal/hr	504 kW	7.2 g/kWh	Hornbeck spec sheet Tier 2	c	8.0 lb/hr	2.36 tpy
Generator 3	503.54 kW	Cruising/DP/Idling	0 hr/yr	32 gal/hr	504 kW	7.2 g/kWh	Hornbeck spec sheet Tier 2	i	0.0 lb/hr	0.00 tpy
Emergency Generator	170 kW	Cruising/DP/Idling	8 hr/yr	12.8 gal/hr	170 kW	13.9 g/kWh	EPA Ocean Vessel Guidance	c	5.2 lb/hr	0.02 tpy
34' boom work boats - 4										
WB-1 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	6.227 g/kWh	Cummins spec sheet Tier 2	d	3.1 lb/hr	0.07 tpy
WB-1 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	6.227 g/kWh	Cummins spec sheet Tier 2	d	3.1 lb/hr	0.07 tpy
WB-2 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	6.227 g/kWh	Cummins spec sheet Tier 2	d	3.1 lb/hr	0.07 tpy
WB-2 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	6.227 g/kWh	Cummins spec sheet Tier 2	d	3.1 lb/hr	0.07 tpy
WB-3 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	6.227 g/kWh	Cummins spec sheet Tier 2	d	3.1 lb/hr	0.07 tpy
WB-3 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	6.227 g/kWh	Cummins spec sheet Tier 2	d	3.1 lb/hr	0.07 tpy
WB-4 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	6.227 g/kWh	Cummins spec sheet Tier 2	d	3.1 lb/hr	0.07 tpy
WB-4 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	6.227 g/kWh	Cummins spec sheet Tier 2	d	3.1 lb/hr	0.07 tpy
Marine Research Vessel										
Main Engine	850 hp	Cruising	600 hr/yr	45 gal/hr	850 hp	0.024 lb/hp-h	AP-42, Table 3.4-1	f	20.4 lb/hr	6.1 tpy
Generator 1	135 kW	Cruising	600 hr/yr	10 gal/hr	135 kW	13.9 g/kWh	EPA Ocean Vessel Guidance	c	4.1 lb/hr	1.2 tpy
Generator 2	90 kW	Cruising	600 hr/yr	6 gal/hr	90 kW	13.9 g/kWh	EPA Ocean Vessel Guidance	c	2.8 lb/hr	0.8 tpy
Generator 3	40 kW	Cruising	600 hr/yr	3 gal/hr	40 kW	13.9 g/kWh	EPA Ocean Vessel Guidance	c	1.2 lb/hr	0.4 tpy

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Nitrogen Oxides

Emission Unit Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential NOx Emissions Hourly Emission Rate	Potential NOx Emissions Annual Emission Rate
Spill Storage Tanker										
Main Engine 1	19460 bhp	Cruising	5 hr/yr	1031 gal/hr	19,460 bhp	0.024 lb/hp-h	AP-42, Table 3.4-1	e	467.0 lb/hr	1.1 tpy
Generator 1	600 kW	Anchored/Cruising	29 hr/yr	43 gal/hr	600 kW	13.9 g/kWh	EPA Ocean Vessel Guidance	c	18.4 lb/hr	0.27 tpy
Generator 2	600 kW	Cruising	29 hr/yr	43 gal/hr	600 kW	13.9 g/kWh	EPA Ocean Vessel Guidance	c	18.4 lb/hr	0.27 tpy
Generator 3	600 kW	Anchored	- hr/yr	0 gal/hr	- kW	13.9 g/kWh	EPA Ocean Vessel Guidance	i	0 lb/hr	0.00 tpy
Emergency Generator	350 kW	Anchored	- hr/yr	0 gal/hr	- kW	13.9 g/kWh	EPA Ocean Vessel Guidance	i	0 lb/hr	0.00 tpy
Boiler 1	4900 kg/hr	Anchored/Cruising	53 hr/yr	4900 kg/hr	212 MMBtu/hr*	20 lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	g	32.0 lb/hr	0.84 tpy
Boiler 2	4900 kg/hr	Anchored	- hr/yr	0 kg/hr	- MMBtu/hr*	20 lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	i	0 lb/hr	0.00 tpy
					*Heat input rate					
All Vessels Fuel Tanks										
Fuel Tank	N A	NA	2,400 hr/yr	2,880,158 gal/yr*	N A	NA	NA		NA	NA
					*Max throughput					

1 1.341 hp/kW; 454g/lb; Break Specific Fuel Consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1).
2 Ultra Low Sulfur Diesel #1 (ULSD): Fuel Heat Content of 132,096 Btu/gal; Density of 0.8094 kg/L; so 6.74 lbs/gal diesel is assumed (Tesoro/Kenai Refinery).
3 Incinerator Fuel Heat Content (Waste) of 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17). Incinerators will burn ULSD for ignition purposes only.
4 Fuel Consumption has been calculated from Power Output where not available from manufacturer specifications.
5 An equivalent of two main drilling engines at 100% load will operate continuously for up to 4800 hours per season. All four main drilling engines will operate at 100% load for up to 48 hours per season.
6 Mud degassing rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977).
7 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 18 times per year).
8 Drill Rig Incinerator Operating Hours (65 tons/season) = (840 ft3 waste/wk) ÷ (27 ft3/yd3) x (14 wks/season) x (300 lbs/yd3 (EPA factor)) ÷ (2,000 lb/ton);
840 ft3 = 9,333 lbs/week material produced for incineration, 300 lbs/cubic foot density for waste, incinerator same size as on Discoverer (276 bs/hr).
9 OSV & Ware Vessel assume operation of up to 100 hrs/season for open water idling in the 25 mile zone, if weather delays off-loading.
10 EPA Ocean Vessel Guidance is "Emission Inventories for Ocean-Going Vessels Using Category 3 Propulsion Engines In or Near the United States" (EPA420-D-07-007, December, 2007) -Table 3-55 Marine Distillate Fuel.
11 EPA Ocean Vessel Guidance (OVG) was used for auxiliary engines. AP-42 Emission Factors were used for propulsion engines. OVG was used for the propulsion engines on the work boats because it was assumed that they would have similar emissions to auxiliary engines due to their small size.
12 AP-42 emission factors were used for the drill rig main engines because it provided higher emissions rates than EPA OVG. OVG was used for the drill rig's cement engines and logging winch because these are new engines which will have emissions similar to marine auxiliary engines.
13 It is assumed that brake horse power (bhp) is approximately equal to horse power (hp).
14 Emissions (tons) = Hourly Emission Rate (lb/hr) x Allowable Operation (hr/yr) x (1 ton/2000 lb).
15 All Drill Rig Main Engines and all Ice Breaker Engines use SCR emission controls.
16 Hornbeck Spec Sheet Emission Factor is NOx + THC.
17 AP-42, Table 2.1-12 (10/1996) Industrial/Commercial, Multiple Chamber.

Note
a Hourly Emission Rate (lb/hr) = Emission Factor (lb/ton) x Max Fuel Usage (lb/hr) x (1 ton/2,000 lbs)
b Hourly Emission Rate (lb/hr) = Emission Factor (lb/1,000 gal) x Max Fuel Usage (gal/hr)
c Hourly Emission Rate (lb/hr) = Emissin Factor (g/kWh) x Max Output Capacity (kW) x (1 lb/454 g)
d Hourly Emission Rate (lb/hr) = Emission Factor (g/kWh) x Max Output Capacity (hp) x (1 kW/1.3405 hp) x (1 lb/454 g)
e Hourly Emission Rate (lb/hr) = Emission Factor (lb/hp-h) x Max Output Capacity (kW) x (1.3405 hp/kW)
f Hourly Emission Rate (lb/hr) = Emission Factor (lb/hp-h) x Max Output Capacity (hp)
g Hourly Emission Rate (lb/hr = Emission Factor (lb/1,000 gal) x Heat Input Rate (MMBtu/hr) ÷ Fuel Heat Content (132,096 Btu/gal)
h Hourly Emission Rate (lb/hr) = Emission Factor (g/kWh) x Max Fuel Use (gal/hr) x Fuel Heat Content (132096 Btu/gal) x (1 kW/1.3405 hp) x Fuel Consumption Rate (1 hp-h/7000 Btu) x (1lb/454 g)
i Not operating while within 25 miles of the rig
j Hourly Emission Rate (lb/hr) = Emission Factor (lb/MMBtu) x Max Fuel Use (gal/hr) x Fuel Heat Content (132,096 Btu/gal)
k Hourly Emission Rate (lb/hr) = Emission Factor (lb/MMBtu) x Max Fuel Use (g/kW-h) x Fuel Heat Content (132,096 Btu/gal)x (1lb/454g) x Fuel Density (gal/6.74lb)

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Carbon Monoxide

Emission Unit Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential CO Emissions Hourly Emission Rate	Potential CO Emissions Annual Emission Rate
Drill Rig Equipment										
Main Drill Rig Engine 1	2480 kW	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	0.85 lb/MMBtu	AP-42, Table 3.4-1 (10/1996)	j	18.7 lb/hr	11.0 tpy
Main Drill Rig Engine 1	2480 kW	Preload	15 hr/yr	217 g/kWh	1,249 kW	0.85 lb/MMBtu	AP-42, Table 3.4-1 (10/1996)	j	9.9 lb/hr	0.075 tpy
Main Drill Rig Engine 1	2480 kW	Preload Hold & Discharge	9 hr/yr	358 g/kWh	256 kW	0.85 lb/MMBtu	AP-42, Table 3.4-1 (10/1996)	j	3.4 lb/hr	0.015 tpy
Main Drill Rig Engine 1	2480 kW	Jackup to Final Air Gap	3 hr/yr	221 g/kWh	999 kW	0.85 lb/MMBtu	AP-42, Table 3.4-1 (10/1996)	j	8.1 lb/hr	0.012 tpy
Main Drill Rig Engine 1	2480 kW	Prepare for Drilling	18 hr/yr	205.8 g/kWh	2,480 kW	0.85 lb/MMBtu	AP-42, Table 3.4-1 (10/1996)	j	18.7 lb/hr	0.169 tpy
Main Drill Rig Engine 2	2480 kW	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	0.85 lb/MMBtu	AP-42, Table 3.4-1 (10/1996)	j	18.7 lb/hr	11.0 tpy
Main Drill Rig Engine 2	2480 kW	Preload	15 hr/yr	217 g/kWh	1,249 kW	0.85 lb/MMBtu	AP-42, Table 3.4-1 (10/1996)	j	9.9 lb/hr	0.075 tpy
Main Drill Rig Engine 2	2480 kW	Preload Hold & Discharge	9 hr/yr	358 g/kWh	256 kW	0.85 lb/MMBtu	AP-42, Table 3.4-1 (10/1996)	j	3.4 lb/hr	0.015 tpy
Main Drill Rig Engine 2	2480 kW	Jackup to Final Air Gap	3 hr/yr	221 g/kWh	999 kW	0.85 lb/MMBtu	AP-42, Table 3.4-1 (10/1996)	j	8.1 lb/hr	0.012 tpy
Main Drill Rig Engine 2	2480 kW	Prepare for Drilling	18 hr/yr	205.8 g/kWh	2,480 kW	0.85 lb/MMBtu	AP-42, Table 3.4-1 (10/1996)	j	18.7 lb/hr	0.169 tpy
Main Drill Rig Engine 3	2480 kW	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	0.85 lb/MMBtu	AP-42, Table 3.4-1 (10/1996)	j	18.7 lb/hr	11.0 tpy
Main Drill Rig Engine 3	2480 kW	Preload	15 hr/yr	358 g/kWh	256 kW	0.85 lb/MMBtu	AP-42, Table 3.4-1 (10/1996)	j	3.4 lb/hr	0.025 tpy
Main Drill Rig Engine 3	2480 kW	Preload Hold & Discharge	9 hr/yr	358 g/kWh	256 kW	0.85 lb/MMBtu	AP-42, Table 3.4-1 (10/1996)	j	3.4 lb/hr	0.015 tpy
Main Drill Rig Engine 3	2480 kW	Jackup to Final Air Gap	3 hr/yr	221 g/kWh	999 kW	0.85 lb/MMBtu	AP-42, Table 3.4-1 (10/1996)	j	8.1 lb/hr	0.012 tpy
Main Drill Rig Engine 4	2480 kW	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	0.85 lb/MMBtu	AP-42, Table 3.4-1 (10/1996)	j	18.7 lb/hr	11.0 tpy
Emergency Back-up Engine	968 kW	Drilling mode	75 hr/yr	205 g/kWh	968 kW	0.85 lb/MMBtu	AP-42, Table 3.4-1 (10/1996)	j	7.3 lb/hr	0.3 tpy
Cement Engine 1	403 kW	Drilling mode	131 hr/yr	29 gal/hr	403 kW	1.1 g/kW-h	EPA Ocean Vessel Guidance	c	1.0 lb/hr	0.06 tpy
Cement Engine 2	403 kW	Drilling mode	131 hr/yr	29 gal/hr	403 kW	1.1 g/kW-h	EPA Ocean Vessel Guidance	c	1.0 lb/hr	0.06 tpy
Logging Winch	187 kW	Drilling mode	273 hr/yr	13 gal/hr	187 kW	1.1 g/kW-h	EPA Ocean Vessel Guidance	c	0.5 lb/hr	0.06 tpy
Heater 1	3.5 MMBtu/hr*	Drilling mode	2,400 hr/yr	26 gal/hr	3.5 MMBtu/hr*	5 lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	a	0.13 lb/hr	0.16 tpy
Heater 2	3.5 MMBtu/hr*	Drilling mode	2,400 hr/yr	26 gal/hr	3.5 MMBtu/hr*	5 lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	a	0.13 lb/hr	0.16 tpy
Incinerator	N A	Drilling mode	65 tons/yr	276 lbs/hr	N A	10 lbs/ton	AP-42, Table 2.1-12	d	0.3 lb/hr	0.3 tpy
Fuel Tank 1	N A	Drilling mode	2,400 hrs/yr	470,220 gal/yr**	N A	NA	NA		NA	NA
Fuel Tank 2	N A	Drilling mode	2,400 hrs/yr	470,220 gal/yr**	N A	NA	NA		NA	NA
Mud Degassing	20000 scf/day	Drilling mode	100 days/yr	NA	20,000 scf/day	NA	NA		NA	NA
					**Max throughput	*Heat input rate				
Ice Breaker 1										
Main Engine 1	7500 kW	Cruising	675 hr/yr	426 gal/hr	8,046 hp	5.5E-03 lb/hp-h	AP-42, Table 3.4-1 (10/1996)	e	44.3 lb/hr	14.94 tpy
Main Engine 2	7500 kW	Cruising	675 hr/yr	426 gal/hr	8,046 hp	5.5E-03 lb/hp-h	AP-42, Table 3.4-1 (10/1996)	e	44.3 lb/hr	14.94 tpy
Main Engine 3	7500 kW	Cruising	675 hr/yr	320 gal/hr	6,035 hp	5.5E-03 lb/hp-h	AP-42, Table 3.4-1 (10/1996)	e	33.2 lb/hr	11.20 tpy
Main Engine 4	7500 kW	Cruising	675 hr/yr	320 gal/hr	6,035 hp	5.5E-03 lb/hp-h	AP-42, Table 3.4-1 (10/1996)	e	33.2 lb/hr	11.20 tpy
Harbor Generator	952.11 hp	Cruising	8 hr/yr	50 gal/hr	952 hp	1.1 g/kW-h	EPA Ocean Vessel Guidance	f	1.7 lb/hr	0.01 tpy
Emergency Generator	402.3 hp	Cruising	8 hr/yr	21 gal/hr	402 hp	1.1 g/kW-h	EPA Ocean Vessel Guidance	f	0.7 lb/hr	0.003 tpy
Boiler 1	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	5 lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	g	0.1 lb/hr	0.05 tpy
Boiler 2	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	5 lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	g	0.1 lb/hr	0.05 tpy
Incinerator	N A	Cruising	675 hr/yr	175 lb/hr	N A	10 lbs/ton	AP-42, Table 2.1-12	d	0.9 lb/hr	0.30 tpy
						*Heat input rate				
Ice Breaker 2										
Main Engine 1	7500 kW	Cruising	675 hr/yr	426 gal/hr	8,046 hp	5.5E-03 lb/hp-h	AP-42, Table 3.4-1 (10/1996)	e	44.3 lb/hr	14.94 tpy
Main Engine 2	7500 kW	Cruising	675 hr/yr	426 gal/hr	8,046 hp	5.5E-03 lb/hp-h	AP-42, Table 3.4-1 (10/1996)	e	44.3 lb/hr	14.94 tpy
Main Engine 3	7500 kW	Cruising	675 hr/yr	320 gal/hr	6,035 hp	5.5E-03 lb/hp-h	AP-42, Table 3.4-1 (10/1996)	e	33.2 lb/hr	11.20 tpy
Main Engine 4	7500 kW	Cruising	675 hr/yr	320 gal/hr	6,035 hp	5.5E-03 lb/hp-h	AP-42, Table 3.4-1 (10/1996)	e	33.2 lb/hr	11.20 tpy
Harbor Generator	952.11 hp	Cruising	8 hr/yr	50 gal/hr	952 hp	1.1 g/kW-h	EPA Ocean Vessel Guidance	f	1.7 lb/hr	0.01 tpy
Emergency Generator	402.3 hp	Cruising	8 hr/yr	21 gal/hr	402 hp	1.1 g/kW-h	EPA Ocean Vessel Guidance	f	0.7 lb/hr	0.003 tpy
Boiler 1	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	5 lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	g	0.1 lb/hr	0.05 tpy
Boiler 2	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	5 lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	g	0.1 lb/hr	0.05 tpy
Incinerator	N A	Cruising	675 hr/yr	175 lb/hr	N A	10 lbs/ton	AP-42, Table 2.1-12	d	0.9 lb/hr	0.30 tpy
						*Heat input rate				

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Carbon Monoxide

Emission Unit Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential CO Emissions Hourly Emission Rate	Potential CO Emissions Annual Emission Rate
Anchor Handler Tug Supply Vessel (AHTS)										
Main Engine 1	2710 kW	Cruising	0.08 hr/yr	99 gal/hr	1,400 kW	5.5E-03 lb/hp-h	AP-42, Table 3.4-1 (10/1996)	b	10.3 lb/hr	4.13E-04 tpy
Main Engine 2	2710 kW	Cruising	0.08 hr/yr	99 gal/hr	1,400 kW	5.5E-03 lb/hp-h	AP-42, Table 3.4-1 (10/1996)	b	10.3 lb/hr	4.13E-04 tpy
Main Engine 1	2710 kW	Mooring Assist	9 hr/yr	71 gal/hr	1,000 kW	5.5E-03 lb/hp-h	AP-42, Table 3.4-1 (10/1996)	b	7.4 lb/hr	0.03 tpy
Main Engine 2	2710 kW	Mooring Assist	9 hr/yr	71 gal/hr	1,000 kW	5.5E-03 lb/hp-h	AP-42, Table 3.4-1 (10/1996)	b	7.4 lb/hr	0.03 tpy
Tow Winch Engine	750 kW	Mooring Assist	9 hr/yr	11 gal/hr	150 kW	1.1 g/kW-h	EPA Ocean Vessel Guidance	f	0.4 lb/hr	1.64E-03 tpy
Thruster Engine 1	750 kW	Mooring Assist	9 hr/yr	27 gal/hr	375 kW	5.5E-03 lb/hp-h	AP-42, Table 3.4-1 (10/1996)	b	2.8 lb/hr	1.24E-02 tpy
Thruster Engine 2	750 kW	Mooring Assist	9 hr/yr	27 gal/hr	375 kW	5.5E-03 lb/hp-h	AP-42, Table 3.4-1 (10/1996)	b	2.8 lb/hr	1.24E-02 tpy
Generator 1	500 kW	Anchored	1,196 hr/yr	18 gal/hr	250 kW	1.1 g/kW-h	EPA Ocean Vessel Guidance	f	0.6 lb/hr	0.36 tpy
Generator 1	500 kW	Mooring Assist	9 hr/yr	21 gal/hr	300 kW	1.1 g/kW-h	EPA Ocean Vessel Guidance	f	0.7 lb/hr	3.27E-03 tpy
Generator 1	500 kW	Cruising	0.08 hr/yr	18 gal/hr	250 kW	1.1 g/kW-h	EPA Ocean Vessel Guidance	f	0.6 lb/hr	2.42E-05 tpy
Generator 2	500 kW	DP	1196 hr/yr	11 gal/hr	150 kW	1.1 g/kW-h	EPA Ocean Vessel Guidance	i	- lb/hr	0.00 tpy
Emergency Generator	205.89 kW	Non-propulsion	8 hr/yr	20 gal/hr	276 hp	1.1 g/kW-h	EPA Ocean Vessel Guidance	f	0.5 lb/hr	0.00 tpy
					*Heat input rate					
Oil Spill Response Vessel 1 (Dedicated OSRV)										
Main Engine 1	3070 bhp	Cruising	864 hr/yr	77.5 gal/hr	-- --	0.85 lb/MMBtu	AP-42, Table 3.4-1 (10/1996)	l	8.7 lb/hr	3.8 tpy
Main Engine 2	3070 bhp	Cruising	864 hr/yr	77.5 gal/hr	-- --	0.85 lb/MMBtu	AP-42, Table 3.4-1 (10/1996)	l	8.7 lb/hr	3.8 tpy
Thruster Engine 1	1100 hp	Laying Boom	36 hr/yr	11.6 gal/hr	-- --	5.5E-03 lb/hp-h	AP-42, Table 3.4-1 (10/1996)	e	6.1 lb/hr	0.11 tpy
Thruster Engine 2	1100 hp	Laying Boom	36 hr/yr	10.6 gal/hr	-- --	5.5E-03 lb/hp-h	AP-42, Table 3.4-1 (10/1996)	e	6.1 lb/hr	0.11 tpy
Thruster Engine 3	1100 hp	Laying Boom	36 hr/yr	7.1 gal/hr	-- --	5.5E-03 lb/hp-h	AP-42, Table 3.4-1 (10/1996)	e	6.1 lb/hr	0.11 tpy
Generator 1	710 kW	Cruising/DP/Anchored	1,164 hr/yr	11.54 gal/hr	-- --	1.1 g/kW-h	EPA Ocean Vessel Guidance	c	1.7 lb/hr	1.0 tpy
Generator 1	710 kW	Laying Boom	36 hr/yr	11.54 gal/hr	-- --	1.1 g/kW-h	EPA Ocean Vessel Guidance	c	1.7 lb/hr	0.03 tpy
Generator 2	710 kW	Cruising/DP	1,164 hr/yr	11.54 gal/hr	-- --	1.1 g/kW-h	EPA Ocean Vessel Guidance	c	1.7 lb/hr	1.0 tpy
Generator 2	710 kW	Laying Boom	36 hr/yr	11.54 gal/hr	-- --	1.1 g/kW-h	EPA Ocean Vessel Guidance	c	1.7 lb/hr	0.03 tpy
Emergency Generator	279 hp	Cruising/DP	8 hr/yr	15 gal/hr	279 hp	1.1 g/kW-h	EPA Ocean Vessel Guidance	f	0.5 lb/hr	2.0E-03 tpy
Oil Spill Response Vessel 2										
Main Engine 1	3070 bhp	Cruising	60 hr/yr	77.5 gal/hr	-- --	0.85 lb/MMBtu	AP-42, Table 3.4-1 (10/1996)	l	8.7 lb/hr	0.3 tpy
Main Engine 2	3070 bhp	Cruising	60 hr/yr	77.5 gal/hr	-- --	0.85 lb/MMBtu	AP-42, Table 3.4-1 (10/1996)	l	8.7 lb/hr	0.3 tpy
Thruster Engine 1	1100 hp	Cruising	0 hr/yr	0 gal/hr	-- --	5.5E-03 lb/hp-h	AP-42, Table 3.4-1 (10/1996)	i	0 lb/hr	0.0 tpy
Thruster Engine 2	1100 hp	Cruising	0 hr/yr	0 gal/hr	-- --	5.5E-03 lb/hp-h	AP-42, Table 3.4-1 (10/1996)	i	0 lb/hr	0.0 tpy
Thruster Engine 3	1100 hp	Cruising	0 hr/yr	0 gal/hr	-- --	5.5E-03 lb/hp-h	AP-42, Table 3.4-1 (10/1996)	i	0 lb/hr	0.0 tpy
Generator 1	710 kW	Cruising/DP	30 hr/yr	11.54 gal/hr	-- --	1.1 g/kW-h	EPA Ocean Vessel Guidance	c	1.7 lb/hr	0.03 tpy
Generator 2	710 kW	Cruising/DP	30 hr/yr	11.54 gal/hr	-- --	1.1 g/kW-h	EPA Ocean Vessel Guidance	c	1.7 lb/hr	0.03 tpy
Emergency Generator	279 hp	Cruising/DP	8 hr/yr	15 gal/hr	279 hp	1.1 g/kW-h	EPA Ocean Vessel Guidance	f	0.5 lb/hr	2.0E-03 tpy

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Carbon Monoxide

	Emission Unit Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential CO Emissions Hourly Emission Rate	Potential CO Emissions Annual Emission Rate
Offshore Supply Vessels (OSV1 & OSV2)											
	Main Engine 1	3151 hp	Cruising	378 hr/yr	75 gal/hr	-- --	5 g/kW-h	Hornbeck spec sheet Tier 2	h	11.6 lb/hr	2.2 tpy
	Main Engine 1	3151 hp	Idling	133 hr/yr	67 gal/hr	-- --	5 g/kW-h	Hornbeck spec sheet Tier 2	h	10.4 lb/hr	0.7 tpy
	Main Engine 2	3151 hp	Cruising	378 hr/yr	75 gal/hr	-- --	5 g/kW-h	Hornbeck spec sheet Tier 2	h	11.6 lb/hr	2.2 tpy
	Main Engine 2	3151 hp	Idling	133 hr/yr	67 gal/hr	-- --	5 g/kW-h	Hornbeck spec sheet Tier 2	h	10.4 lb/hr	0.7 tpy
	Thruster Engine 1	950 hp	DP	756 hr/yr	45 gal/hr	950 bhp	5 g/kW-h	Hornbeck spec sheet Tier 2	f	7.8 lb/hr	3.0 tpy
	Thruster Engine 2	950 hp	DP	756 hr/yr	45 gal/hr	950 bhp	5 g/kW-h	Hornbeck spec sheet Tier 2	f	7.8 lb/hr	3.0 tpy
	Thruster Engine 3	950 hp	DP	756 hr/yr	45 gal/hr	950 bhp	5 g/kW-h	Hornbeck spec sheet Tier 2	f	7.8 lb/hr	3.0 tpy
	Generator	400 kW	Cruising/DP/Idle	634 hr/yr	27 gal/hr	400 kW	5 g/kW-h	Hornbeck spec sheet Tier 2	c	4.4 lb/hr	1.4 tpy
	Generator	400 kW	Cruising/DP/Idle	634 hr/yr	27 gal/hr	400 kW	5 g/kW-h	Hornbeck spec sheet Tier 2	c	4.4 lb/hr	1.4 tpy
	Generator	400 kW	Cruising/DP/Idle	0 hr/yr	27 gal/hr	400 kW	5 g/kW-h	Hornbeck spec sheet Tier 2	i	0 lb/hr	0.00 tpy
	Emergency Generator	99 kW	Cruising/DP/Idle	8 hr/yr	8 gal/hr	99 kW	5 g/kW-h	Hornbeck spec sheet Tier 2	c	1.1 lb/hr	0.004 tpy
Ware Vessel (WV) w/ AHTS and OSV backup											
	Main Engine 1	2387.2 kW	Cruising	360 hr/yr	87 gal/hr	-- --	5 g/kW-h	Hornbeck spec sheet for OSV Tier 2	h	13.5 lb/hr	2.4 tpy
	Main Engine 2	2387.2 kW	Cruising	360 hr/yr	87 gal/hr	-- --	5 g/kW-h	Hornbeck spec sheet for OSV Tier 2	h	13.5 lb/hr	2.4 tpy
	Main Engine 3	2387.2 kW	DP/Idling	820 hr/yr	81 gal/hr	-- --	5 g/kW-h	Hornbeck spec sheet for OSV Tier 2	h	12.6 lb/hr	5.1 tpy
	Main Engine 4	2387.2 kW	DP/Idling	820 hr/yr	81 gal/hr	-- --	5 g/kW-h	Hornbeck spec sheet for OSV Tier 2	h	12.6 lb/hr	5.1 tpy
	Generator 1	503.54 kW	Cruising/DP/Idling	590 hr/yr	32 gal/hr	504 kW	5 g/kW-h	Hornbeck spec sheet for OSV Tier 2	c	5.5 lb/hr	1.6 tpy
	Generator 2	503.54 kW	Cruising/DP/Idling	590 hr/yr	32 gal/hr	504 kW	5 g/kW-h	Hornbeck spec sheet for OSV Tier 2	c	5.5 lb/hr	1.6 tpy
	Generator 3	503.54 kW	Cruising/DP/Idling	0 hr/yr	32 gal/hr	504 kW	5 g/kW-h	Hornbeck spec sheet for OSV Tier 2	i	0.0 lb/hr	0.0 tpy
	Emergency Generator	170 kW	Cruising/DP/Idling	8 hr/yr	12.8 gal/hr	170 kW	1.1 g/kW-h	EPA Ocean Vessel Guidance	c	0.4 lb/hr	0.00 tpy
34' boom work boats - 4											
	WB-1 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.208 g/kW-h	Cummins spec sheet Tier 2	f	0.1 lb/hr	0.002 tpy
	WB-1 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.208 g/kW-h	Cummins spec sheet Tier 2	f	0.1 lb/hr	0.002 tpy
	WB-2 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.208 g/kW-h	Cummins spec sheet Tier 2	f	0.1 lb/hr	0.002 tpy
	WB-2 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.208 g/kW-h	Cummins spec sheet Tier 2	f	0.1 lb/hr	0.002 tpy
	WB-3 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.208 g/kW-h	Cummins spec sheet Tier 2	f	0.1 lb/hr	0.002 tpy
	WB-3 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.208 g/kW-h	Cummins spec sheet Tier 2	f	0.1 lb/hr	0.002 tpy
	WB-4 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.208 g/kW-h	Cummins spec sheet Tier 2	f	0.1 lb/hr	0.002 tpy
	WB-4 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.208 g/kW-h	Cummins spec sheet Tier 2	f	0.1 lb/hr	0.002 tpy
Marine Research Vessel											
	Main Engine	850 hp	Cruising	600 hr/yr	45 gal/hr	850 hp	5.5E-03 lb/hp-h	AP-42, Table 3.4-1 (10/1996)	e	4.7 lb/hr	1.4 tpy
	Generator 1	135 kW	Cruising	600 hr/yr	10 gal/hr	135 kW	1.1 g/kW-h	EPA Ocean Vessel Guidance	c	0.3 lb/hr	0.1 tpy
	Generator 2	90 kW	Cruising	600 hr/yr	6 gal/hr	90 kW	1.1 g/kW-h	EPA Ocean Vessel Guidance	c	0.2 lb/hr	0.1 tpy
	Generator 3	40 kW	Cruising	600 hr/yr	3 gal/hr	40 kW	1.1 g/kW-h	EPA Ocean Vessel Guidance	c	0.1 lb/hr	0.0 tpy

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Carbon Monoxide

Emission Unit Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential CO Emissions Hourly Emission Rate	Potential CO Emissions Annual Emission Rate
Spill Storage Tanker										
Main Engine 1	19460 bhp	Cruising	5 hr/yr	1031 gal/hr	19,460 bhp	5.5E-03 lb/hp-h	AP-42, Table 3.4-1 (10/1996)	e	107.0 lb/hr	0.25 tpy
Generator 1	600 kW	Anchored/Cruising	29 hr/yr	43 gal/hr	600 kW	5.5E-03 lb/hp-h	AP-42, Table 3.4-1 (10/1996)	b	4.4 lb/hr	0.06 tpy
Generator 2	600 kW	Cruising	29 hr/yr	43 gal/hr	600 kW	5.5E-03 lb/hp-h	AP-42, Table 3.4-1 (10/1996)	b	4.4 lb/hr	0.06 tpy
Generator 3	600 kW	Anchored	- hr/yr	0 gal/hr	- kW	5.5E-03 lb/hp-h	AP-42, Table 3.4-1 (10/1996)	b	0.0 lb/hr	0.0 tpy
Emergency Generator	350 kW	Anchored	- hr/yr	0 gal/hr	- kW	1.1 g/kW-h	EPA Ocean Vessel Guidance	b	0.0 lb/hr	0.0 tpy
Boiler 1	4900 kg/hr	Anchored/Cruising	53 hr/yr	4900 kg/hr	212 MMBtu/hr*	5.0 lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	a	8.0 lb/hr	0.21 tpy
Boiler 2	4900 kg/hr	Anchored	- hr/yr	0 kg/hr	- MMBtu/hr*	5.0 lbs/1000 gal	AP-42, Table 1.3-1 (9/1998)	i	0 lb/hr	0.0 tpy
					*Heat input rate					
All Vessels Fuel Tanks										
Fuel Tank	N A	NA	2,400 hr/yr	2,880,158 gal/yr*	N A	NA	NA		NA	NA
					*Max throughput					

1 1.341 hp/kW; 454g/lb; Break Specific Fuel Consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1).
2 Ultra Low Sulfur Diesel #1 (ULSD): Fuel Heat Content of 132,096 Btu/gal; Density of 0.8094 kg/L; so 6.74 lbs/gal diesel is assumed (Tesoro/Kenai Refinery).
3 Incinerator Fuel Heat Content (Waste) of 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17). Incinerators will burn ULSD for ignition purposes only.
4 Fuel Consumption has been calculated from Power Output where not available from manufacturer specifications.
5 An equivalent of two main drilling engines at 100% load will operate continuously for up to 4800 hours per season. All four main drilling engines will operate at 100% load for up to 48 hours per season.
6 Mud degassing rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977).
7 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 18 times per year).
8 Drill Rig Incinerator Operating Hours (65 tons/season) = (840 ft3 waste/wk) ÷ (27 ft3/yd3) x (14 wks/season) x (300 lbs/yd3 (EPA factor)) ÷ (2,000 lb/ton);
840 ft3 = 9,333 lbs/week material produced for incineration, 300 lbs/cubic foot density for waste, incinerator same size as on Discoverer (276 bs/hr).
9 OSV & Ware Vessel assume operation of up to 100 hrs/season for open water idling in the 25 mile zone, if weather delays off-loading.
10 EPA Ocean Vessel Guidance is "Emission Inventories for Ocean-Going Vessels Using Category 3 Propulsion Engines In or Near the United States" (EPA420-D-07-007, December, 2007) -Table 3-55 Marine Distillate Fuel.
11 EPA Ocean Vessel Guidance (OVG) was used for auxiliary engines. AP-42 Emission Factors were used for propulsion engines. OVG was used for the propulsion engines on the work boats because it was assumed that they would have similar emissions to auxiliary engines due to their small size.
12 AP-42 emission factors were used for the drill rig main engines because it provided higher emissions rates than EPA OVG. OVG was used for the drill rig's cement engines and logging winch because these are new engines which will have emissions similar to marine auxiliary engines.
13 It is assumed that brake horse power (bhp) is approximately equal to horse power (hp).
14 Emissions (tons) = Hourly Emission Rate (lb/hr) x Allowable Operation (hr/yr) x (1 ton/2000 lb).
15 Per 46 CFR 109.211, each emergency generator is tested at least once each month for at least two hours (8 hours per drilling season). Assume all emergency generators comply with this rule while within the 25 mi radius.

Note
a Hourly Emission Rate (lb/hr) = Emission Factor (lb/1,000 gal) x Max Output Capacity (MMBtu/hr) ÷ Fuel Heat Content (132,096 Btu/gal)
b Hourly Emission Rate (lb/hr) = Emission Factor (lb/hp-h) x Max Output Capacity (kW) x (1.3405 hp/kW)
c Hourly Emission Rate (lb/hr) = Emission Factor (g/kWh) x Max Output Capacity (kW) x (1 lb/454 g)
d Hourly Emission Rate (lb/hr) = Emission Factor (lb/ton) x Max Fuel Usage (lb/hr) x (1 ton/2,000lb)
e Hourly Emission Rate (lb/hr) = Emission Factor (lb/hp-h) x Max Output Capacity (hp)
f Hourly Emission Rate (lb/hr) = Emission Factor (g/kWh) x Max Output Capacity (hp) x (1 kW/1.3405 hp) x (1 lb/454 g)
g Hourly Emission Rate (lb/hr) = Emission Factor (lb/1,000 gal) x Max Fuel Usage (gal/hr)
h Hourly Emission Rate (lb/hr) = Emission Factor (g/kWh) x Max Fuel Use (gal/hr) x Fuel Heat Content (132096 Btu/gal) x (1 kW/1.3405 hp) x Fuel Consumption Rate (1 hp-h/7000 Btu) x (1lb/454 g)
i Not operating while within 25 miles of the rig
j Hourly Emission Rate (lb/hr) = Emission Factor (lb/MMBtu) x Max Output Capacity (kW) x Max Fuel Usage (g/kW-h) x (1gal/6.74lb) x Fuel Density (1lb/454g) x Fuel Heat Content (132,096Btu/gal)
k Hourly Emission Rate (lb/hr) = Emission Factor (lb/hp-hr) xMax Fuel Usage (gal/hr) x Fuel Heat Content (132,096Btu/gal)x (1 btu/7000 bhp-hr)
l Hourly Emission Rate (lb/hr) = Emission Factor (lb/MMBtu) x Max Fuel Use (gal/hr) x Fuel Heat Content (132,096 Btu/gal)

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - PM10/2.5

Emission Unit Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential PM10/2.5 Emissions Hourly Emission Rate	Potential PM10/2.5 Emissions Annual Emission Rate
Drill Rig Equipment										
Main Drill Rig Engine 1	2480 kW	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	0.0573 lb/MMBtu	AP-42 Tables 3.4-2	j	1.3 lb/hr	7.44E-01 tpy
Main Drill Rig Engine 1	2480 kW	Preload	15 hr/yr	217 g/kWh	1,249 kW	0.0573 lb/MMBtu	AP-42 Tables 3.4-2	j	0.7 lb/hr	5.03E-03 tpy
Main Drill Rig Engine 1	2480 kW	Preload Hold & Discharge	9 hr/yr	358 g/kWh	256 kW	0.0573 lb/MMBtu	AP-42 Tables 3.4-2	j	0.2 lb/hr	1.02E-03 tpy
Main Drill Rig Engine 1	2480 kW	Jackup to Final Air Gap	3 hr/yr	221 g/kWh	999 kW	0.0573 lb/MMBtu	AP-42 Tables 3.4-2	j	0.5 lb/hr	8.19E-04 tpy
Main Drill Rig Engine 1	2480 kW	Prepare for Drilling	18 hr/yr	205.8 g/kWh	2,480 kW	0.0573 lb/MMBtu	AP-42 Tables 3.4-2	j	1.3 lb/hr	1.14E-02 tpy
Main Drill Rig Engine 2	2480 kW	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	0.0573 lb/MMBtu	AP-42 Tables 3.4-2	j	1.3 lb/hr	7.44E-01 tpy
Main Drill Rig Engine 2	2480 kW	Preload	15 hr/yr	217 g/kWh	1,249 kW	0.0573 lb/MMBtu	AP-42 Tables 3.4-2	j	0.7 lb/hr	5.03E-03 tpy
Main Drill Rig Engine 2	2480 kW	Preload Hold & Discharge	9 hr/yr	358 g/kWh	256 kW	0.0573 lb/MMBtu	AP-42 Tables 3.4-2	j	0.2 lb/hr	1.02E-03 tpy
Main Drill Rig Engine 2	2480 kW	Jackup to Final Air Gap	3 hr/yr	221 g/kWh	999 kW	0.0573 lb/MMBtu	AP-42 Tables 3.4-2	j	0.5 lb/hr	8.19E-04 tpy
Main Drill Rig Engine 2	2480 kW	Prepare for Drilling	18 hr/yr	205.8 g/kWh	2,480 kW	0.0573 lb/MMBtu	AP-42 Tables 3.4-2	j	1.3 lb/hr	1.14E-02 tpy
Main Drill Rig Engine 3	2480 kW	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	0.0573 lb/MMBtu	AP-42 Tables 3.4-2	j	1.3 lb/hr	7.44E-01 tpy
Main Drill Rig Engine 3	2480 kW	Preload	15 hr/yr	358 g/kWh	256 kW	0.0573 lb/MMBtu	AP-42 Tables 3.4-2	j	0.2 lb/hr	1.70E-03 tpy
Main Drill Rig Engine 3	2480 kW	Preload Hold & Discharge	9 hr/yr	358 g/kWh	256 kW	0.0573 lb/MMBtu	AP-42 Tables 3.4-2	j	0.2 lb/hr	1.02E-03 tpy
Main Drill Rig Engine 3	2480 kW	Jackup to Final Air Gap	3 hr/yr	221 g/kWh	999 kW	0.0573 lb/MMBtu	AP-42 Tables 3.4-2	j	0.5 lb/hr	8.19E-04 tpy
Main Drill Rig Engine 4	2480 kW	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	0.0573 lb/MMBtu	AP-42 Tables 3.4-2	j	1.3 lb/hr	7.44E-01 tpy
Emergency Back-up Engine	968 kW	Drilling mode	75 hr/yr	205 g/kWh	968 kW	0.0573 lb/MMBtu	AP-42 Tables 3.4-2	j	0.5 lb/hr	1.84E-02 tpy
Cement Engine 1	403 kW	Drilling mode	131 hr/yr	29 gal/hr	403 kW	0.3 g/kW-h	EPA Ocean Vessel Guidance	g	0.3 lb/hr	1.75E-02 tpy
Cement Engine 2	403 kW	Drilling mode	131 hr/yr	29 gal/hr	403 kW	0.3 g/kW-h	EPA Ocean Vessel Guidance	g	0.3 lb/hr	1.75E-02 tpy
Logging Winch	187 kW	Drilling mode	273 hr/yr	13 gal/hr	187 kW	0.3 g/kW-h	EPA Ocean Vessel Guidance	g	0.1 lb/hr	1.69E-02 tpy
Heater 1	3.5 MMBtu/hr*	Drilling mode	2,400 hr/yr	26 gal/hr	3.5 MMBtu/hr*	1.08 lbs/1000 gal	AP-42, Table 1.3-7 (9/1998)	f	0.03 lb/hr	3.43E-02 tpy
Heater 2	3.5 MMBtu/hr*	Drilling mode	2,400 hr/yr	26 gal/hr	3.5 MMBtu/hr*	1.08 lbs/1000 gal	AP-42, Table 1.3-7 (9/1998)	f	0.03 lb/hr	3.43E-02 tpy
Incinerator	N A	Drilling mode	65 tons/yr	276 lbs/hr	N A	7 lbs/ton	AP-42, Table 2.1-12	c	0.2 lb/hr	0.2 tpy
Fuel Tank 1	N A	Drilling mode	2,400 hrs/yr	470,220 gal/yr**	N A	NA	NA		NA	NA
Fuel Tank 2	N A	Drilling mode	2,400 hrs/yr	470,220 gal/yr**	N A	NA	NA		NA	NA
Mud Degassing	20000 scf/day	Drilling mode	100 days/yr	NA	20,000 scf/day	NA	NA		NA	NA
					**Max throughput	*Heat input rate				
Ice Breaker 1										
Main Engine 1	7500 kW	Cruising	675 hr/yr	426 gal/hr	8,046 hp	0.0573 lb/MMBtu	AP-42, Table 3.4-2	h	3.2 lb/hr	1.09E+00 tpy
Main Engine 2	7500 kW	Cruising	675 hr/yr	426 gal/hr	8,046 hp	0.0573 lb/MMBtu	AP-42, Table 3.4-2	h	3.2 lb/hr	1.09E+00 tpy
Main Engine 3	7500 kW	Cruising	675 hr/yr	320 gal/hr	6,035 hp	0.0573 lb/MMBtu	AP-42, Table 3.4-2	h	2.4 lb/hr	8.17E-01 tpy
Main Engine 4	7500 kW	Cruising	675 hr/yr	320 gal/hr	6,035 hp	0.0573 lb/MMBtu	AP-42, Table 3.4-2	h	2.4 lb/hr	8.17E-01 tpy
Harbor Generator	952.11 hp	Cruising	8 hr/yr	50 gal/hr	952 hp	0.3 g/kW-h	EPA Ocean Vessel Guidance	e	0.5 lb/hr	1.88E-03 tpy
Emergency Generator	402.3 hp	Cruising	8 hr/yr	21 gal/hr	402 hp	0.3 g/kW-h	EPA Ocean Vessel Guidance	e	0.2 lb/hr	7.93E-04 tpy
Boiler 1	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	1.08 lbs/1000 gal	AP-42, Table 1.3-7 (9/1998)	f	0.03 lb/hr	1.02E-02 tpy
Boiler 2	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	1.08 lbs/1000 gal	AP-42, Table 1.3-7 (9/1998)	f	0.03 lb/hr	1.02E-02 tpy
Incinerator	N A	Cruising	675 hr/yr	175 lb/hr	N A	7 lbs/ton	AP-42, Table 2.1-12	c	0.6 lb/hr	2.07E-01 tpy
						*Heat input rate				
Ice Breaker 2										
Main Engine 1	7500 kW	Cruising	675 hr/yr	426 gal/hr	8,046 hp	0.0573 lb/MMBtu	AP-42, Table 3.4-2	h	3.2 lb/hr	1.09E+00 tpy
Main Engine 2	7500 kW	Cruising	675 hr/yr	426 gal/hr	8,046 hp	0.0573 lb/MMBtu	AP-42, Table 3.4-2	h	3.2 lb/hr	1.09E+00 tpy
Main Engine 3	7500 kW	Cruising	675 hr/yr	320 gal/hr	6,035 hp	0.0573 lb/MMBtu	AP-42, Table 3.4-2	h	2.4 lb/hr	8.17E-01 tpy
Main Engine 4	7500 kW	Cruising	675 hr/yr	320 gal/hr	6,035 hp	0.0573 lb/MMBtu	AP-42, Table 3.4-2	h	2.4 lb/hr	8.17E-01 tpy
Harbor Generator	952.11 hp	Cruising	8 hr/yr	50 gal/hr	952 hp	0.3 g/kW-h	EPA Ocean Vessel Guidance	e	0.5 lb/hr	1.88E-03 tpy
Emergency Generator	402.3 hp	Cruising	8 hr/yr	21 gal/hr	402 hp	0.3 g/kW-h	EPA Ocean Vessel Guidance	e	0.2 lb/hr	7.93E-04 tpy
Boiler 1	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	1.08 lbs/1000 gal	AP-42, Table 1.3-7 (9/1998)	f	0.03 lb/hr	1.02E-02 tpy
Boiler 2	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	1.08 lbs/1000 gal	AP-42, Table 1.3-7 (9/1998)	f	0.03 lb/hr	1.02E-02 tpy
Incinerator	N A	Cruising	675 hr/yr	175 lb/hr	N A	7 lbs/ton	AP-42, Table 2.1-12	c	0.6 lb/hr	2.07E-01 tpy
						*Heat input rate				

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - PM10/2.5

	Emission Unit Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential PM10/2.5 Emissions Hourly Emission Rate	Potential PM10/2.5 Emissions Annual Emission Rate
Anchor Handler Tug Supply Vessel (AHTS)											
	Main Engine 1	2710 kW	Cruising	0.08 hr/yr	99 gal/hr	1,400 kW	0.0573 lb/MMBtu	AP-42 Tables 3.4-2	b	0.8 lb/hr	3.01E-05 tpy
	Main Engine 2	2710 kW	Cruising	0.08 hr/yr	99 gal/hr	1,400 kW	0.0573 lb/MMBtu	AP-42 Tables 3.4-2	b	0.8 lb/hr	3.01E-05 tpy
	Main Engine 1	2710 kW	Mooring Assist	9 hr/yr	71 gal/hr	1,000 kW	0.0573 lb/MMBtu	AP-42 Tables 3.4-2	b	0.5 lb/hr	2.42E-03 tpy
	Main Engine 2	2710 kW	Mooring Assist	9 hr/yr	71 gal/hr	1,000 kW	0.0573 lb/MMBtu	AP-42 Tables 3.4-2	b	0.5 lb/hr	2.42E-03 tpy
	Tow Winch Engine	750 kW	Mooring Assist	9 hr/yr	11 gal/hr	150 kW	0.3 g/kW-h	EPA Ocean Vessel Guidance	g	0.1 lb/hr	4.46E-04 tpy
	Thruster Engine 1	750 kW	Mooring Assist	9 hr/yr	27 gal/hr	375 kW	0.0573 lb/MMBtu	AP-42 Tables 3.4-2	b	0.2 lb/hr	9.07E-04 tpy
	Thruster Engine 2	750 kW	Mooring Assist	9 hr/yr	27 gal/hr	375 kW	0.0573 lb/MMBtu	AP-42 Tables 3.4-2	b	0.2 lb/hr	9.07E-04 tpy
	Generator 1	500 kW	Anchored	1,196 hr/yr	18 gal/hr	250 kW	0.3 g/kW-h	EPA Ocean Vessel Guidance	g	0.17 lb/hr	9.88E-02 tpy
	Generator 1	500 kW	Mooring Assist	9 hr/yr	21 gal/hr	300 kW	0.3 g/kW-h	EPA Ocean Vessel Guidance	g	0.20 lb/hr	8.92E-04 tpy
	Generator 1	500 kW	Cruising	0.1 hr/yr	18 gal/hr	250 kW	0.3 g/kW-h	EPA Ocean Vessel Guidance	g	0.17 lb/hr	6.61E-06 tpy
	Generator 2	500 kW	DP	1,196 hr/yr	11 gal/hr	150 kW	0.3 g/kW-h	EPA Ocean Vessel Guidance	g	0.10 lb/hr	5.93E-02 tpy
	Emergency Generator	205.89 kW	Non-propulsion	8 hr/yr	20 gal/hr	276 hp	0.3 g/kW-h	EPA Ocean Vessel Guidance	e	0.1 lb/hr	5.44E-04 tpy
Oil Spill Response Vessel 1 (Dedicated OSRV)											
	Main Engine 1	3070 bhp	Cruising	864 hr/yr	77.5 gal/hr	-- --	0.0573 lb/MMBtu	AP-42, Table 3.4-2	h	0.6 lb/hr	2.53E-01 tpy
	Main Engine 2	3070 bhp	Cruising	864 hr/yr	77.5 gal/hr	-- --	0.0573 lb/MMBtu	AP-42, Table 3.4-2	h	0.6 lb/hr	2.53E-01 tpy
	Thruster Engine 1	1100 hp	Laying Boom	36 hr/yr	11.6 gal/hr	-- --	0.0573 lb/MMBtu	AP-42, Table 3.4-2	h	0.1 lb/hr	1.58E-03 tpy
	Thruster Engine 2	1100 hp	Laying Boom	36 hr/yr	10.6 gal/hr	-- --	0.0573 lb/MMBtu	AP-42, Table 3.4-2	h	0.1 lb/hr	1.44E-03 tpy
	Thruster Engine 3	1100 hp	Laying Boom	36 hr/yr	7.1 gal/hr	-- --	0.0573 lb/MMBtu	AP-42, Table 3.4-2	h	0.1 lb/hr	9.67E-04 tpy
	Generator 1	710 kW	Cruising/DP/Anchored	1,164 hr/yr	11.54 gal/hr	-- --	0.3 g/kW-h	EPA Ocean Vessel Guidance	g	0.5 lb/hr	2.73E-01 tpy
	Generator 1	710 kW	Laying Boom	36 hr/yr	11.54 gal/hr	-- --	0.3 g/kW-h	EPA Ocean Vessel Guidance	g	0.5 lb/hr	8.44E-03 tpy
	Generator 2	710 kW	Cruising/DP	1,164 hr/yr	11.54 gal/hr	-- --	0.3 g/kW-h	EPA Ocean Vessel Guidance	g	0.5 lb/hr	2.73E-01 tpy
	Generator 2	710 kW	Laying Boom	36 hr/yr	11.54 gal/hr	-- --	0.3 g/kW-h	EPA Ocean Vessel Guidance	g	0.5 lb/hr	8.44E-03 tpy
	Emergency Generator	279 hp	Cruising/DP	8 hr/yr	15 gal/hr	279 hp	0.3 g/kW-h	EPA Ocean Vessel Guidance	e	0.1 lb/hr	5.50E-04 tpy
Oil Spill Response Vessel 2											
	Main Engine 1	3070 bhp	Cruising	60 hr/yr	77.5 gal/hr	-- --	0.0573 lb/MMBtu	AP-42, Table 3.4-2	h	0.6 lb/hr	1.76E-02 tpy
	Main Engine 2	3070 bhp	Cruising	60 hr/yr	77.5 gal/hr	-- --	0.0573 lb/MMBtu	AP-42, Table 3.4-2	h	0.6 lb/hr	1.76E-02 tpy
	Thruster Engine 1	1100 hp	Cruising	- hr/yr	- gal/hr	-- --	0.0573 lb/MMBtu	AP-42, Table 3.4-2	i	0 lb/hr	0.00E+00 tpy
	Thruster Engine 2	1100 hp	Cruising	- hr/yr	- gal/hr	-- --	0.0573 lb/MMBtu	AP-42, Table 3.4-2	i	0 lb/hr	0.00E+00 tpy
	Thruster Engine 3	1100 hp	Cruising	- hr/yr	- gal/hr	-- --	0.0573 lb/MMBtu	AP-42, Table 3.4-2	i	0 lb/hr	0.00E+00 tpy
	Generator 1	710 kW	Cruising/DP	30 hr/yr	11.54 gal/hr	-- --	0.3 g/kW-h	EPA Ocean Vessel Guidance	g	0.47 lb/hr	7.04E-03 tpy
	Generator 2	710 kW	Cruising/DP	30 hr/yr	11.54 gal/hr	-- --	0.3 g/kW-h	EPA Ocean Vessel Guidance	g	0.47 lb/hr	7.04E-03 tpy
	Emergency Generator	279 hp	Cruising/DP	8 hr/yr	15 gal/hr	279 hp	0.3 g/kW-h	EPA Ocean Vessel Guidance	i	0 lb/hr	0.00E+00 tpy

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - PM10/2.5

	Emission Unit Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential PM10/2.5 Emissions Hourly Emission Rate	Potential PM10/2.5 Emissions Annual Emission Rate
Offshore Supply Vessels (OSV1 & OSV2)											
	Main Engine 1	3151 hp	Cruising	378 hr/yr	75 gal/hr	-- --	0.0573 lb/MMBtu	AP-42, Table 3.4-2	h	0.6 lb/hr	1.07E-01 tpy
	Main Engine 1	3151 hp	Idling	133 hr/yr	67 gal/hr	-- --	0.0573 lb/MMBtu	AP-42, Table 3.4-2	h	0.5 lb/hr	3.37E-02 tpy
	Main Engine 2	3151 hp	Cruising	378 hr/yr	75 gal/hr	-- --	0.0573 lb/MMBtu	AP-42, Table 3.4-2	h	0.6 lb/hr	1.07E-01 tpy
	Main Engine 2	3151 hp	Idling	133 hr/yr	67 gal/hr	-- --	0.0573 lb/MMBtu	AP-42, Table 3.4-2	h	0.5 lb/hr	3.37E-02 tpy
	Thruster Engine 1	950 hp	DP	756 hr/yr	45 gal/hr	950 bhp	0.0573 lb/MMBtu	AP-42, Table 3.4-2	h	0.3 lb/hr	1.29E-01 tpy
	Thruster Engine 2	950 hp	DP	756 hr/yr	45 gal/hr	950 bhp	0.0573 lb/MMBtu	AP-42, Table 3.4-2	h	0.3 lb/hr	1.29E-01 tpy
	Thruster Engine 3	950 hp	DP	756 hr/yr	45 gal/hr	950 bhp	0.0573 lb/MMBtu	AP-42, Table 3.4-2	h	0.3 lb/hr	1.29E-01 tpy
	Generator	400 kW	Cruising/DP/Idle	634 hr/yr	27 gal/hr	400 kW	0.3 g/kW-h	EPA Ocean Vessel Guidance	g	0.3 lb/hr	8.37E-02 tpy
	Generator	400 kW	Cruising/DP/Idle	634 hr/yr	27 gal/hr	400 kW	0.3 g/kW-h	EPA Ocean Vessel Guidance	g	0.3 lb/hr	8.37E-02 tpy
	Generator	400 kW	Cruising/DP/Idle	0 hr/yr	27 gal/hr	400 kW	0.3 g/kW-h	EPA Ocean Vessel Guidance	i	0.0 lb/hr	0.00E+00 tpy
	Emergency Generator	99 kW	Cruising/DP/Idle	8 hr/yr	8 gal/hr	99 kW	0.3 g/kW-h	EPA Ocean Vessel Guidance	g	0.1 lb/hr	2.62E-04 tpy
Ware Vessel (WV) w/ AHTS and OSV backup											
	Main Engine 1	2387 kW	Cruising	360 hr/yr	87 gal/hr	-- --	0.0573 lb/MMBtu	AP-42, Table 3.4-2	h	0.7 lb/hr	1.19E-01 tpy
	Main Engine 2	2387 kW	Cruising	360 hr/yr	87 gal/hr	-- --	0.0573 lb/MMBtu	AP-42, Table 3.4-2	h	0.7 lb/hr	1.19E-01 tpy
	Main Engine 3	2387 kW	DP/Idling	820 hr/yr	81 gal/hr	-- --	0.0573 lb/MMBtu	AP-42, Table 3.4-2	h	0.6 lb/hr	2.51E-01 tpy
	Main Engine 4	2387 kW	DP/Idling	820 hr/yr	81 gal/hr	-- --	0.0573 lb/MMBtu	AP-42, Table 3.4-2	h	0.6 lb/hr	2.51E-01 tpy
	Generator 1	504 kW	Cruising/DP/Idling	590 hr/yr	32 gal/hr	504 kW	0.3 g/kW-h	EPA Ocean Vessel Guidance	g	0.333 lb/hr	9.82E-02 tpy
	Generator 2	504 kW	Cruising/DP/Idling	590 hr/yr	32 gal/hr	504 kW	0.3 g/kW-h	EPA Ocean Vessel Guidance	g	0.333 lb/hr	9.82E-02 tpy
	Generator 3	504 kW	Cruising/DP/Idling	0 hr/yr	32 gal/hr	504 kW	0.3 g/kW-h	EPA Ocean Vessel Guidance	i	0.0 lb/hr	0.00E+00 tpy
	Emergency Generator	170 kW	Cruising/DP/Idling	8 hr/yr	12.8 gal/hr	170 kW	0.3 g/kW-h	EPA Ocean Vessel Guidance	g	0.11 lb/hr	4.49E-04 tpy
34' boom work boats - 4											
	WB-1 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.3 g/kW-h	EPA Ocean Vessel Guidance	e	0.1 lb/hr	3.55E-03 tpy
	WB-1 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.3 g/kW-h	EPA Ocean Vessel Guidance	e	0.1 lb/hr	3.55E-03 tpy
	WB-2 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.3 g/kW-h	EPA Ocean Vessel Guidance	e	0.1 lb/hr	3.55E-03 tpy
	WB-2 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.3 g/kW-h	EPA Ocean Vessel Guidance	e	0.1 lb/hr	3.55E-03 tpy
	WB-3 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.3 g/kW-h	EPA Ocean Vessel Guidance	e	0.1 lb/hr	3.55E-03 tpy
	WB-3 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.3 g/kW-h	EPA Ocean Vessel Guidance	e	0.1 lb/hr	3.55E-03 tpy
	WB-4 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.3 g/kW-h	EPA Ocean Vessel Guidance	e	0.1 lb/hr	3.55E-03 tpy
	WB-4 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.3 g/kW-h	EPA Ocean Vessel Guidance	e	0.1 lb/hr	3.55E-03 tpy
Marine Research Vessel											
	Main Engine	850 hp	Cruising	600 hr/yr	45 gal/hr	850 hp	0.0573 lb/MMBtu	AP-42 Tables 3.4-2	d	0.3 lb/hr	1.02E-01 tpy
	Generator 1	135 kW	Cruising	600 hr/yr	10 gal/hr	135 kW	0.3 g/kW-h	EPA Ocean Vessel Guidance	g	0.1 lb/hr	2.68E-02 tpy
	Generator 2	90 kW	Cruising	600 hr/yr	6 gal/hr	90 kW	0.3 g/kW-h	EPA Ocean Vessel Guidance	g	0.1 lb/hr	1.78E-02 tpy
	Generator 3	40 kW	Cruising	600 hr/yr	3 gal/hr	40 kW	0.3 g/kW-h	EPA Ocean Vessel Guidance	g	0.03 lb/hr	7.93E-03 tpy

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - PM10/2.5

Emission Unit Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential PM10/2.5 Emissions Hourly Emission Rate	Potential PM10/2.5 Emissions Annual Emission Rate
Spill Storage Tanker										
Main Engine 1	19460 bhp	Cruising	5 hr/yr	1031 gal/hr	19,460 bhp	0.0573 lb/MMBtu	AP-42, Table 3.4-2	b	7.8 lb/hr	1.84E-02 tpy
Generator 1	600 kW	Anchored/Cruising	29 hr/yr	43 gal/hr	600 kW	0.3 g/kW-h	EPA Ocean Vessel Guidance	g	0.4 lb/hr	5.75E-03 tpy
Generator 2	600 kW	Cruising	29 hr/yr	43 gal/hr	600 kW	0.3 g/kW-h	EPA Ocean Vessel Guidance	g	0.4 lb/hr	5.75E-03 tpy
Generator 3	600 kW	Anchored	- hr/yr	0 gal/hr	- kW	0.3 g/kW-h	EPA Ocean Vessel Guidance	i	0 lb/hr	0.00E+00 tpy
Emergency Generator	350 kW	Anchored	- hr/yr	0 gal/hr	350 kW	0.3 g/kW-h	EPA Ocean Vessel Guidance	i	0 lb/hr	0.00E+00 tpy
Boiler 1	4900 kg/hr	Anchored/Cruising	53 hr/yr	4900 kg/hr	212 MMBtu/hr*	1.08 lbs/1000 gal	AP-42, Table 1.3-7 (9/1998)	f	1.730 lb/hr	4.56E-02 tpy
Boiler 2	4900 kg/hr	Anchored	- hr/yr	0 kg/hr	- MMBtu/hr*	1.08 lbs/1000 gal	AP-42, Table 1.3-7 (9/1998)	i	0 lb/hr	0.00E+00 tpy
					*Heat input rate					
All Vessels Fuel Tanks										
Fuel Tank	N A	NA	2,400 hr/yr	2,880,158 gal/yr*	N A	NA	NA		NA	NA
				*Max throughput						

1 1.341 hp/kW; 454g/lb; Break Specific Fuel Consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1).
2 Ultra Low Sulfur Diesel #1 (ULSD): Fuel Heat Content of 132,096 Btu/gal; Density of 0.8094 kg/L; so 6.74 lbs/gal diesel is assumed (Tesoro/Kenai Refinery).
3 Incinerator Fuel Heat Content (Waste) of 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17). Incinerators will burn ULSD for ignition purposes only.
4 Fuel Consumption has been calculated from Power Output where not available from manufacturer specifications.
5 An equivalent of two main drilling engines at 100% load will operate continuously for up to 4800 hours per season. All four main drilling engines will operate at 100% load for up to 48 hours per season.
6 Mud degassing rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977).
7 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 18 times per year).
8 Drill Rig Incinerator Operating Hours (65 tons/season) = (840 ft3 waste/wk) ÷ (27 ft3/yd3) x (14 wks/season) x (300 lbs/yd3 (EPA factor)) ÷ (2,000 lb/ton);
840 ft3 = 9,333 lbs/week material produced for incineration, 300 lbs/cubic foot density for waste, incinerator same size as on Discoverer (276 bs/hr).
9 OSV & Ware Vessel assume operation of up to 100 hrs/season for open water idling in the 25 mile zone, if weather delays off-loading.
11 EPA Ocean Vessel Guidance is "Emission Inventories for Ocean-Going Vessels Using Category 3 Propulsion Engines In or Near the United States" (EPA420-D-07-007, December, 2007) -Table 3-55 Marine Distillate Fuel.
12 EPA Ocean Vessel Guidance (OVG) was used for auxiliary engines. AP-42 Emission Factors were used for propulsion engines. OVG was used for the propulsion engines on the work boats because it was assumed that they would have similar emissions to auxiliary engines due to their small size.
13 It is assumed that brake horse power (bhp) is approximately equal to horse power (hp).
14 Emissions (tons) = Hourly Emission Rate (lb/hr) x Allowable Operation (hr/yr) x (1 ton/2000 lb).

Note
a Hourly Emission Rate (lb/hr) = Emission Factor (g/kWh) x Max Fuel Usage (gal/hr) ÷ Fuel Consumption Rate (7,000 Btu/hp-h) x Fuel Heat Content (132,096 Btu/gal) ÷ (1.3405 hp/kW) x (1 lb/454 g)
b Hourly Emission Rate (lb/hr) = Emission Factor (lb/MMBtu) x Max Output Capacity (kW) x Fuel Consumption Rate (7,000 Btu/hp-h) x (1.3405 hp/kW)
c Hourly Emission Rate (lb/hr) = Emission Factor (lb/ton) x Max Fuel Usage (lb/hr) x (1 ton/2,000 lbs)
d Hourly Emission Rate (lb/hr) = Emission Factor (lb/MMBtu) x Max Output Capacity (hp) x Fuel Consumption Rate (7,000 Btu/hp-h)
e Hourly Emission Rate (lb/hr) = Emission Factor (g/kW-h) x Max Output Capacity (bhp) x (1 lb/454 g) x (1 kw/1.3405 hp)
f Hourly Emission Rate (lb/hr) = Emission Factor (lb/1,000 gal) x Max Output Capacity (MMBtu/hr) ÷ Fuel Heat Content (132,096 Btu/gal)
g Hourly Emission Rate (lb/hr) = Emission Factor (g/kWh) x Max Output Capacity (kW) ÷ (454 g/lb)
h Hourly Emission Rate (lb/hr) = Emission Factor (lb/MMBtu) x Max Fuel Usage (gal/hr) x Fuel Heat Content (132,096 Btu/gal)
i Not operating while within 25 miles of the rig
j Hourly Emission Rate (lb/hr) = Emission Factor (lb/MMBtu) x Max Output Capacity (kW) x Max Fuel Usage (g/kW-h) x (1gal/6.74lb) x Fuel Density (1lb/454g) x Fuel Heat Content (132,096Btu/gal)

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Particulate Matter

Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential PM Emissions Hourly Emission Rate	Potential PM Emissions Annual Emission Rate
Drill Rig Equipment										
Main Drill Rig Engine 1	2480 kW	Drilling mode	1179 hr/yr	205.8 g/kWh	2480 kW	0.1 lb/MMBtu	AP-42 Table 3.4-1	k	2.2 lb/hr	1.30 tpy
Main Drill Rig Engine 1	2480 kW	Preload	15 hr/yr	217 g/kWh	1249 kW	0.1 lb/MMBtu	AP-42 Table 3.4-1	k	1.2 lb/hr	8.78E-03 tpy
Main Drill Rig Engine 1	2480 kW	Preload Hold & Discharge	9 hr/yr	358 g/kWh	256 kW	0.1 lb/MMBtu	AP-42 Table 3.4-1	k	0.4 lb/hr	1.78E-03 tpy
Main Drill Rig Engine 1	2480 kW	Jackup to Final Air Gap	3 hr/yr	221 g/kWh	999 kW	0.1 lb/MMBtu	AP-42 Table 3.4-1	k	1.0 lb/hr	1.43E-03 tpy
Main Drill Rig Engine 1	2480 kW	Prepare for Drilling	18 hr/yr	205.8 g/kWh	2480 kW	0.1 lb/MMBtu	AP-42 Table 3.4-1	k	2.2 lb/hr	0.020 tpy
Main Drill Rig Engine 2	2480 kW	Drilling mode	1179 hr/yr	205.8 g/kWh	2480 kW	0.1 lb/MMBtu	AP-42 Table 3.4-1	k	2.2 lb/hr	1.30 tpy
Main Drill Rig Engine 2	2480 kW	Preload	15 hr/yr	217 g/kWh	1249 kW	0.1 lb/MMBtu	AP-42 Table 3.4-1	k	1.17 lb/hr	8.78E-03 tpy
Main Drill Rig Engine 2	2480 kW	Preload Hold & Discharge	9 hr/yr	358 g/kWh	256 kW	0.1 lb/MMBtu	AP-42 Table 3.4-1	k	0.40 lb/hr	1.78E-03 tpy
Main Drill Rig Engine 2	2480 kW	Jackup to Final Air Gap	3 hr/yr	221 g/kWh	999 kW	0.1 lb/MMBtu	AP-42 Table 3.4-1	k	0.95 lb/hr	1.43E-03 tpy
Main Drill Rig Engine 2	2480 kW	Prepare for Drilling	18 hr/yr	205.8 g/kWh	2480 kW	0.1 lb/MMBtu	AP-42 Table 3.4-1	k	2.20 lb/hr	0.02 tpy
Main Drill Rig Engine 3	2480 kW	Drilling mode	1179 hr/yr	205.8 g/kWh	2480 kW	0.1 lb/MMBtu	AP-42 Table 3.4-1	k	2.20 lb/hr	1.30 tpy
Main Drill Rig Engine 3	2480 kW	Preload	15 hr/yr	358 g/kWh	256 kW	0.1 lb/MMBtu	AP-42 Table 3.4-1	k	0.40 lb/hr	2.97E-03 tpy
Main Drill Rig Engine 3	2480 kW	Preload Hold & Discharge	9 hr/yr	358 g/kWh	256 kW	0.1 lb/MMBtu	AP-42 Table 3.4-1	k	0.40 lb/hr	1.78E-03 tpy
Main Drill Rig Engine 3	2480 kW	Jackup to Final Air Gap	3 hr/yr	221 g/kWh	999 kW	0.1 lb/MMBtu	AP-42 Table 3.4-1	k	0.95 lb/hr	1.43E-03 tpy
Main Drill Rig Engine 4	2480 kW	Drilling mode	1179 hr/yr	205.8 g/kWh	2480 kW	0.1 lb/MMBtu	AP-42 Table 3.4-1	k	2.20 lb/hr	1.30 tpy
Emergency Back-up Engine	968 kW	Drilling mode	75 hr/yr	205 g/kWh	968 kW	0.1 lb/MMBtu	AP-42 Table 3.4-1	k	0.86 lb/hr	0.03 tpy
Cement Engine 1	403 kW	Drilling mode	131 hr/yr	29 gal/hr	403 kW	0.3 g/kWh	EPA Ocean Vessel Guidance	g	0.27 lb/hr	0.02 tpy
Cement Engine 2	403 kW	Drilling mode	131 hr/yr	29 gal/hr	403 kW	0.3 g/kWh	EPA Ocean Vessel Guidance	g	0.27 lb/hr	0.02 tpy
Logging Winch	187 kW	Drilling mode	273 hr/yr	13 gal/hr	187 kW	0.3 g/kWh	EPA Ocean Vessel Guidance	g	0.12 lb/hr	0.02 tpy
Heater 1	3.5 MMBtu/hr*	Drilling mode	2400 hr/yr	26 gal/hr	3.5 MMBtu/hr*	2 lb/1,000 gal	AP-42 Table 1.3-1	a	0.05 lb/hr	0.06 tpy
Heater 2	3.5 MMBtu/hr*	Drilling mode	2400 hr/yr	26 gal/hr	3.5 MMBtu/hr*	2 lb/1,000 gal	AP-42 Table 1.3-1	a	0.05 lb/hr	0.06 tpy
Incinerator	N A	Drilling mode	65 tons/yr	276 lbs/hr	N A	7 lbs/ton	AP-42, Table 2.1-12	d	0.97 lb/hr	0.23 tpy
Fuel Tank 1	N A	Drilling mode	2400 hrs/yr	470,220 gal/yr**	N A	NA	NA		NA	NA
Fuel Tank 2	N A	Drilling mode	2400 hrs/yr	470,220 gal/yr**	N A	NA	NA		NA	NA
Mud Degassing	20000 scf/day	Drilling mode	100 days/yr	NA	20000 scf/day	NA	NA		NA	NA

**Max throughput *Heat input rate

Ice Breaker 1

Main Engine 1	7500 kW	Cruising	675 hr/yr	426 gal/hr	8046 hp	0.0007 lb/hp-h	AP-42 Table 3.4-1	c	5.63 lb/hr	1.90 tpy
Main Engine 2	7500 kW	Cruising	675 hr/yr	426 gal/hr	8046 hp	0.0007 lb/hp-h	AP-42 Table 3.4-1	c	5.63 lb/hr	1.90 tpy
Main Engine 3	7500 kW	Cruising	675 hr/yr	320 gal/hr	6035 hp	0.0007 lb/hp-h	AP-42 Table 3.4-1	c	4.22 lb/hr	1.43 tpy
Main Engine 4	7500 kW	Cruising	675 hr/yr	320 gal/hr	6035 hp	0.0007 lb/hp-h	AP-42 Table 3.4-1	c	4.22 lb/hr	1.43 tpy
Harbor Generator	952.11 hp	Cruising	8 hr/yr	50 gal/hr	952 hp	0.0007 lb/hp-h	AP-42 Table 3.4-1	c	0.67 lb/hr	0.00 tpy
Emergency Generator	402.3 hp	Cruising	8 hr/yr	21 gal/hr	402 hp	0.3 g/kWh	EPA Ocean Vessel Guidance	e	0.20 lb/hr	0.001 tpy
Boiler 1	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	2 lb/1,000 gal	AP-42 Table 1.3-1	f	0.06 lb/hr	0.02 tpy
Boiler 2	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	2 lb/1,000 gal	AP-42 Table 1.3-1	f	0.06 lb/hr	0.02 tpy
Incinerator	N A	Cruising	675 hr/yr	175 lb/hr	N A	7 lbs/ton	AP-42, Table 2.1-12	d	0.61 lb/hr	0.21 tpy

*Heat input rate

Ice Breaker 2

Main Engine 1	7500 kW	Cruising	675 hr/yr	426 gal/hr	8046 hp	0.0007 lb/hp-h	AP-42 Table 3.4-1	c	5.63 lb/hr	1.90 tpy
Main Engine 2	7500 kW	Cruising	675 hr/yr	426 gal/hr	8046 hp	0.0007 lb/hp-h	AP-42 Table 3.4-1	c	5.63 lb/hr	1.90 tpy
Main Engine 3	7500 kW	Cruising	675 hr/yr	320 gal/hr	6035 hp	0.0007 lb/hp-h	AP-42 Table 3.4-1	c	4.22 lb/hr	1.43 tpy
Main Engine 4	7500 kW	Cruising	675 hr/yr	320 gal/hr	6035 hp	0.0007 lb/hp-h	AP-42 Table 3.4-1	c	4.22 lb/hr	1.43 tpy
Harbor Generator	952.11 hp	Cruising	8 hr/yr	50 gal/hr	952 hp	0.0007 lb/hp-h	AP-42 Table 3.4-1	c	0.67 lb/hr	0.00 tpy
Emergency Generator	402.3 hp	Cruising	8 hr/yr	21 gal/hr	402 hp	0.3 g/kWh	EPA Ocean Vessel Guidance	e	0.36 lb/hr	0.00 tpy
Boiler 1	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	2 lb/1,000 gal	AP-42 Table 1.3-1	f	0.06 lb/hr	0.02 tpy
Boiler 2	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	2 lb/1,000 gal	AP-42 Table 1.3-1	f	0.06 lb/hr	0.02 tpy
Incinerator	N A	Cruising	675 hr/yr	175 lb/hr	N A	7 lbs/ton	AP-42, Table 2.1-12	d	0.61 lb/hr	0.21 tpy

*Heat input rate

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Particulate Matter

	Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential PM Emissions Hourly Emission Rate	Potential PM Emissions Annual Emission Rate
Anchor Handler Tug Supply Vessel (AHTS)											
	Main Engine 1	2710 kW	Cruising	0.08 hr/yr	99 gal/hr	1400 kW	0.0007 lb/hp-h	AP-42 Table 3.4-1	b	1.31 lb/hr	5.25E-05 tpy
	Main Engine 2	2710 kW	Cruising	0.08 hr/yr	99 gal/hr	1400 kW	0.0007 lb/hp-h	AP-42 Table 3.4-1	b	1.31 lb/hr	5.25E-05 tpy
	Main Engine 1	2710 kW	Mooring Assist	9 hr/yr	71 gal/hr	1000 kW	0.0007 lb/hp-h	AP-42 Table 3.4-1	b	0.94 lb/hr	4.22E-03 tpy
	Main Engine 2	2710 kW	Mooring Assist	9 hr/yr	71 gal/hr	1000 kW	0.0007 lb/hp-h	AP-42 Table 3.4-1	b	0.94 lb/hr	4.22E-03 tpy
	Tow Winch Engine	750 kW	Mooring Assist	9 hr/yr	11 gal/hr	150 kW	0.3 g/kWh	EPA Ocean Vessel Guidance	g	0.10 lb/hr	4.46E-04 tpy
	Thruster Engine 1	750 kW	Mooring Assist	9 hr/yr	27 gal/hr	375 kW	0.0007 lb/hp-h	AP-42 Table 3.4-1	b	0.35 lb/hr	1.58E-03 tpy
	Thruster Engine 2	750 kW	Mooring Assist	9 hr/yr	27 gal/hr	375 kW	0.3 g/kWh	EPA Ocean Vessel Guidance	g	0.25 lb/hr	1.12E-03 tpy
	Generator 1	500 kW	Anchored	1196 hr/yr	18 gal/hr	250 kW	0.3 g/kWh	EPA Ocean Vessel Guidance	g	0.17 lb/hr	9.88E-02 tpy
	Generator 1	500 kW	Mooring Assist	9 hr/yr	21 gal/hr	300 kW	0.3 g/kWh	EPA Ocean Vessel Guidance	g	0.20 lb/hr	8.92E-04 tpy
	Generator 1	500 kW	Cruising	0.08 hr/yr	18 gal/hr	250 kW	0.3 g/kWh	EPA Ocean Vessel Guidance	g	0.17 lb/hr	6.61E-06 tpy
	Generator 2	500 kW	DP	1196 hr/yr	11 gal/hr	150 kW	0.3 g/kWh	EPA Ocean Vessel Guidance	i	0 lb/hr	0.00 tpy
	Emergency Generator	205.89 kW	Non-propulsion	8 hr/yr	20 gal/hr	276 hp	0.3 g/kWh	EPA Ocean Vessel Guidance	g	0.14 lb/hr	5.44E-04 tpy
Oil Spill Response Vessel 1 (Dedicated OSRV)											
	Main Engine 1	3070 bhp	Cruising	864 hr/yr	77.5 gal/hr	-- --	0.1 lb/MMBtu	AP-42 Table 3.4-1	j	1.02 lb/hr	0.44 tpy
	Main Engine 2	3070 bhp	Cruising	864 hr/yr	77.5 gal/hr	-- --	0.1 lb/MMBtu	AP-42 Table 3.4-1	j	1.02 lb/hr	0.44 tpy
	Thruster Engine 1	1100 hp	Laying Boom	36 hr/yr	11.6 gal/hr	-- --	0.0007 lb/hp-h	AP-42 Table 3.4-1	c	0.77 lb/hr	0.01 tpy
	Thruster Engine 2	1100 hp	Laying Boom	36 hr/yr	10.6 gal/hr	-- --	0.0007 lb/hp-h	AP-42 Table 3.4-1	c	0.77 lb/hr	0.01 tpy
	Thruster Engine 3	1100 hp	Laying Boom	36 hr/yr	7.1 gal/hr	-- --	0.0007 lb/hp-h	AP-42 Table 3.4-1	c	0.77 lb/hr	0.01 tpy
	Generator 1	710 kW	Cruising/DP/Anchored	1164 hr/yr	11.54 gal/hr	-- --	0.3 g/kWh	EPA Ocean Vessel Guidance	g	0.47 lb/hr	2.73E-01 tpy
	Generator 1	710 kW	Laying Boom	36 hr/yr	11.54 gal/hr	-- --	0.3 g/kWh	EPA Ocean Vessel Guidance	g	0.47 lb/hr	8.44E-03 tpy
	Generator 2	710 kW	Cruising/DP	1164 hr/yr	11.54 gal/hr	-- --	0.3 g/kWh	EPA Ocean Vessel Guidance	g	0.47 lb/hr	2.73E-01 tpy
	Generator 2	710 kW	Laying Boom	36 hr/yr	11.54 gal/hr	-- --	0.3 g/kWh	EPA Ocean Vessel Guidance	g	0.47 lb/hr	8.44E-03 tpy
	Emergency Generator	279 hp	Cruising/DP	8 hr/yr	15 gal/hr	279 hp	0.3 g/kWh	EPA Ocean Vessel Guidance	e	0.14 lb/hr	0.001 tpy
Oil Spill Response Vessel 2											
	Main Engine 1	3070 bhp	Cruising	60 hr/yr	77.5 gal/hr	-- --	0.1 lb/MMBtu	AP-42 Table 3.4-1	j	1.02 lb/hr	0.03 tpy
	Main Engine 2	3070 bhp	Cruising	60 hr/yr	77.5 gal/hr	-- --	0.1 lb/MMBtu	AP-42 Table 3.4-1	j	1.02 lb/hr	0.03 tpy
	Thruster Engine 1	1100 hp	Cruising	0 hr/yr	- gal/hr	-- --	0.0007 lb/hp-h	AP-42 Table 3.4-1	i	0 lb/hr	0.00 tpy
	Thruster Engine 2	1100 hp	Cruising	0 hr/yr	- gal/hr	-- --	0.0007 lb/hp-h	AP-42 Table 3.4-1	i	0 lb/hr	0.00 tpy
	Thruster Engine 3	1100 hp	Cruising	0 hr/yr	- gal/hr	-- --	0.0007 lb/hp-h	AP-42 Table 3.4-1	i	0 lb/hr	0.00 tpy
	Generator 1	710 kW	Cruising/DP	30 hr/yr	11.54 gal/hr	-- --	0.3 g/kWh	EPA Ocean Vessel Guidance	g	0.47 lb/hr	7.04E-03 tpy
	Generator 2	710 kW	Cruising/DP	30 hr/yr	11.54 gal/hr	-- --	0.3 g/kWh	EPA Ocean Vessel Guidance	g	0.47 lb/hr	7.04E-03 tpy
	Emergency Generator	279 hp	Cruising/DP	8 hr/yr	15 gal/hr	279 hp	0.3 g/kWh	EPA Ocean Vessel Guidance	e	0.14 lb/hr	0.001 tpy

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Particulate Matter

Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential PM Emissions Hourly Emission Rate	Potential PM Emissions Annual Emission Rate
Offshore Supply Vessels (OSV1 & OSV2)										
Main Engine 1	3151 hp	Cruising	378 hr/yr	75 gal/hr	-- --	0.2 g/kWh	Hornbeck spec sheet Tier 2	h	0.5 lb/hr	0.09 tpy
Main Engine 1	3151 hp	Idling	133 hr/yr	67 gal/hr	-- --	0.2 g/kWh	Hornbeck spec sheet Tier 2	h	0.42 lb/hr	0.03 tpy
Main Engine 2	3151 hp	Cruising	378 hr/yr	75 gal/hr	-- --	0.2 g/kWh	Hornbeck spec sheet Tier 2	h	0.46 lb/hr	0.09 tpy
Main Engine 2	3151 hp	Idling	133 hr/yr	67 gal/hr	-- --	0.2 g/kWh	Hornbeck spec sheet Tier 2	h	0.42 lb/hr	0.03 tpy
Thruster Engine 1	950 hp	DP	756 hr/yr	45 gal/hr	950 bhp	0.2 g/kWh	Hornbeck spec sheet Tier 2	e	0.31 lb/hr	0.12 tpy
Thruster Engine 2	950 hp	DP	756 hr/yr	45 gal/hr	950 bhp	0.2 g/kWh	Hornbeck spec sheet Tier 2	e	0.31 lb/hr	0.12 tpy
Thruster Engine 3	950 hp	DP	756 hr/yr	45 gal/hr	950 bhp	0.2 g/kWh	Hornbeck spec sheet Tier 2	e	0.31 lb/hr	0.12 tpy
Generator	400 kW	Cruising/DP/Idle	634 hr/yr	27 gal/hr	400 kW	0.2 g/kWh	Hornbeck spec sheet Tier 2	e	0.18 lb/hr	0.06 tpy
Generator	400 kW	Cruising/DP/Idle	634 hr/yr	27 gal/hr	400 kW	0.2 g/kWh	Hornbeck spec sheet Tier 2	e	0.18 lb/hr	0.06 tpy
Generator	400 kW	Cruising/DP/Idle	0 hr/yr	27 gal/hr	400 kW	0.2 g/kWh	Hornbeck spec sheet Tier 2	i	0 lb/hr	0.00 tpy
Emergency Generator	99 kW	Cruising/DP/Idle	8 hr/yr	8 gal/hr	99 kW	0.3 g/kWh	Hornbeck spec sheet Tier 2	e	0.07 lb/hr	0.000 tpy
Ware Vessel (WV) w/ AHTS and OSV backup										
Main Engine 1	2387.2 kW	Cruising	360 hr/yr	87 gal/hr	-- --	0.2 g/kWh	Hornbeck spec sheet for OSV Tier 2	h	0.5 lb/hr	0.10 tpy
Main Engine 2	2387.2 kW	Cruising	360 hr/yr	87 gal/hr	-- --	0.2 g/kWh	Hornbeck spec sheet for OSV Tier 2	h	0.54 lb/hr	0.10 tpy
Main Engine 3	2387.2 kW	DP/Idling	820 hr/yr	81 gal/hr	-- --	0.2 g/kWh	Hornbeck spec sheet for OSV Tier 2	h	0.50 lb/hr	0.21 tpy
Main Engine 4	2387.2 kW	DP/Idling	820 hr/yr	81 gal/hr	-- --	0.2 g/kWh	Hornbeck spec sheet for OSV Tier 2	h	0.50 lb/hr	0.21 tpy
Generator 1	503.54 kW	Cruising/DP/Idling	590 hr/yr	32 gal/hr	504 kW	0.2 g/kWh	Hornbeck spec sheet for OSV Tier 2	g	0.22 lb/hr	0.07 tpy
Generator 2	503.54 kW	Cruising/DP/Idling	590 hr/yr	32 gal/hr	504 kW	0.2 g/kWh	Hornbeck spec sheet for OSV Tier 2	g	0.22 lb/hr	0.07 tpy
Generator 3	503.54 kW	Cruising/DP/Idling	0 hr/yr	32 gal/hr	504 kW	0.2 g/kWh	Hornbeck spec sheet for OSV Tier 2	i	0 lb/hr	0.00 tpy
Emergency Generator	170 kW	Cruising/DP/Idling	8 hr/yr	12.8 gal/hr	170 kW	0.3 g/kWh	EPA Ocean Vessel Guidance	g	0.11 lb/hr	0.000 tpy
34' boom work boats - 4										
WB-1 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.1 g/kWh	Cummins spec sheet Tier 2	e	0.1 lb/hr	0.001 tpy
WB-1 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.1 g/kWh	Cummins spec sheet Tier 2	e	0.05 lb/hr	0.001 tpy
WB-2 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.1 g/kWh	Cummins spec sheet Tier 2	e	0.05 lb/hr	0.001 tpy
WB-2 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.1 g/kWh	Cummins spec sheet Tier 2	e	0.05 lb/hr	0.001 tpy
WB-3 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.1 g/kWh	Cummins spec sheet Tier 2	e	0.05 lb/hr	0.001 tpy
WB-3 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.1 g/kWh	Cummins spec sheet Tier 2	e	0.05 lb/hr	0.001 tpy
WB-4 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.1 g/kWh	Cummins spec sheet Tier 2	e	0.05 lb/hr	0.001 tpy
WB-4 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.1 g/kWh	Cummins spec sheet Tier 2	e	0.05 lb/hr	0.001 tpy
Marine Research Vessel										
Main Engine	850 hp	Cruising	600 hr/yr	45 gal/hr	850 hp	0.0007 lb/hp-h	AP-42 Table 3.4-1	c	0.60 lb/hr	0.18 tpy
Generator 1	135 kW	Cruising	600 hr/yr	10 gal/hr	135 kW	0.3 g/kWh	EPA Ocean Vessel Guidance	g	0.09 lb/hr	0.03 tpy
Generator 2	90 kW	Cruising	600 hr/yr	6 gal/hr	90 kW	0.3 g/kWh	EPA Ocean Vessel Guidance	g	0.06 lb/hr	0.02 tpy
Generator 3	40 kW	Cruising	600 hr/yr	3 gal/hr	40 kW	0.3 g/kWh	EPA Ocean Vessel Guidance	g	0.03 lb/hr	0.01 tpy

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Particulate Matter

	Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential PM Emissions Hourly Emission Rate	Potential PM Emissions Annual Emission Rate
Spill Storage Tanker											
	Main Engine 1	19460 bhp	Cruising	5 hr/yr	1031 gal/hr	19460 bhp	0.0007 lb/hp-h	AP-42, Table 3.4-1	c	13.62 lb/hr	0.03 tpy
	Generator 1	600 kW	Anchored/Cruising	29 hr/yr	43 gal/hr	600 kW	0.0007 lb/hp-h	AP-42 Table 3.4-1	b	0.56 lb/hr	0.01 tpy
	Generator 2	600 kW	Cruising	29 hr/yr	43 gal/hr	600 kW	0.0007 lb/hp-h	AP-42 Table 3.4-1	b	0.56 lb/hr	0.01 tpy
	Generator 3	600 kW	Anchored	0 hr/yr	0 gal/hr	0 kW	0.3 g/kWh	EPA Ocean Vessel Guidance	i	0 lb/hr	0.0 tpy
	Emergency Generator	350 kW	Anchored	0 hr/yr	0 gal/hr	0 kW	0.3 g/kWh	EPA Ocean Vessel Guidance	i	0 lb/hr	0.0 tpy
	Boiler 1	4900 kg/hr	Anchored/Cruising	53 hr/yr	4900 kg/hr	212 MMBtu/hr*	2 lb/1,000 gal	AP-42 Table 1.3-1	a	3.20 lb/hr	0.08 tpy
	Boiler 2	4900 kg/hr	Anchored	0 hr/yr	0 kg/hr	0 MMBtu/hr*	2 lb/1,000 gal	AP-42 Table 1.3-1	i	0 lb/hr	0.0 tpy
All Vessels Fuel Tanks											
	Fuel Tank	N A	NA	2400 hr/yr	2,880,158 gal/yr*	N A	NA	NA		NA	NA

*Max throughput

1 1.341 hp/kW; 454g/lb; Break Specific Fuel Consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1).
2 Ultra Low Sulfur Diesel #1 (ULSD): Fuel Heat Content of 132,096 Btu/gal; Density of 0.8094 kg/L; so 6.74 lbs/gal diesel is assumed (Tesoro/Kenai Refinery).
3 Incinerator Fuel Heat Content (Waste) of 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17). Incinerators will burn ULSD for ignition purposes only.
4 Fuel Consumption has been calculated from Power Output where not available from manufacturer specifications.
5 An equivalent of two main drilling engines at 100% load will operate continuously for up to 4800 hours per season. All four main drilling engines will operate at 100% load for up to 48 hours per season.
6 Mud degassing rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977).
7 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 18 times per year).
8 Drill Rig Incinerator Operating Hours (65 tons/season) = (840 ft3 waste/wk) ÷ (27 ft3/yd3) x (14 wks/season) x (300 lbs/yd3 (EPA factor)) ÷ (2,000 lb/ton);
840 ft3 = 9,333 lbs/week material produced for incineration, 300 lbs/cubic foot density for waste, incinerator same size as on Discoverer (276 bs/hr).
9 OSV & Ware Vessel assume operation of up to 100 hrs/season for open water idling in the 25 mile zone, if weather delays off-loading.
11 EPA Ocean Vessel Guidance is "Emission Inventories for Ocean-Going Vessels Using Category 3 Propulsion Engines In or Near the United States" (EPA420-D-07-007, December, 2007) -Table 3-55 Marine Distillate Fuel.
12 EPA Ocean Vessel Guidance (OVG) was used for auxiliary engines. AP-42 Emission Factors were used for propulsion engines. OVG was used for the propulsion engines on the work boats because it was assumed that they would have similar
13 AP-42 emission factors were used for the drill rig main engines because it provided higher emissions rates than EPA OVG. OVG was used for the drill rig's cement engines and logging winch because these are new engines which will have emissions
14 It is assumed that brake horse power (bhp) is approximately equal to horse power (hp).
15 Emissions (tons) = Hourly Emission Rate (lb/hr) x Allowable Operation (hr/yr) x (1 ton/2000 lb).

Note

a Hourly Emission Rate (lb/hr) = Emission Factor (lb/1,000 gal) x Max Output Capacity (MMBtu/hr) ÷ Fuel Heat Content (132,096 Btu/gal)
b Hourly Emission Rate (lb/hr) = Emission Factor (lb/hp-h) x Max Output Capacity (kW) x (1.3405 hp/kW)
c Hourly Emission Rate (lb/hr) = Emission Factor (lb/hp-h) x Max Output Capacity (hp)
d Hourly Emission Rate (lb/hr) = Emission Factor (lb/ton) x Max Fuel Usage (lb/hr) x (1 ton/2,000 lbs)
e Hourly Emission Rate (lb/hr) = Emission Factor (g/kWh) x Max Output Capacity (hp) x (1 lb/454 g) / (1.3405 hp/kW)
f Hourly Emission Rate (lb/hr) = Emission Factor (lb/1,000 gal) x Max Fuel Usage (gal/hr)
g Hourly Emission Rate (lb/hr) = Emission Factor (g/kWh) x Max Output Capacity (kW) ÷ (454 g/lb)
h Hourly Emission Rate (lb/hr) = Emission Factor (g/kWh) x Max Fuel Use (gal/hr) x Fuel Heat Content (132096 Btu/gal) x (1 kW/1.3405 hp) x Fuel Consumption Rate (1 hp-h/7000 Btu) x (1lb/454 g)
i Not operating while within 25 miles of the rig
j Hourly Emission Rate (lb/hr) = Emission Factor (lb/MMBtu) x Max Fuel Use (gal/hr) x Fuel Heat Content (132,096 Btu/gal)
k Hourly Emission Rate (lb/hr) = Emission Factor (lb/MMBtu) x Max Output Capacity (kW) x Max Fuel Usage (g/kW-h) x (1lb/454g) x Fuel Density (1lb/454g) x Fuel Heat Content (132,096Btu/gal)

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Volatile Organic Compounds

Emission Unit Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential VOC Emissions Hourly Emission Rate	Potential VOC Emissions Annual Emission Rate
Drill Rig Equipment										
Main Drill Rig Engine 1	2480 kW	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	0.70 g/kWh	Wärtsilä Spec Sheet	b	3.8 lb/hr	2.25 tpy
Main Drill Rig Engine 1	2480 kW	Preload	15 hr/yr	217 g/kWh	1,249 kW	1.42 g/kWh	Wärtsilä Spec Sheet	b	3.9 lb/hr	0.03 tpy
Main Drill Rig Engine 1	2480 kW	Preload Hold & Discharge	9 hr/yr	358 g/kWh	256 kW	4.25 g/kWh	Wärtsilä Spec Sheet	b	2.4 lb/hr	0.01 tpy
Main Drill Rig Engine 1	2480 kW	Jackup to Final Air Gap	3 hr/yr	221 g/kWh	999 kW	1.63 g/kWh	Wärtsilä Spec Sheet	b	3.6 lb/hr	0.01 tpy
Main Drill Rig Engine 1	2480 kW	Prepare for Drilling	18 hr/yr	205.8 g/kWh	2,480 kW	0.70 g/kWh	Wärtsilä Spec Sheet	b	3.8 lb/hr	0.03 tpy
Main Drill Rig Engine 2	2480 kW	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	0.70 g/kWh	Wärtsilä Spec Sheet	b	3.8 lb/hr	2.25 tpy
Main Drill Rig Engine 2	2480 kW	Preload	15 hr/yr	217 g/kWh	1,249 kW	1.42 g/kWh	Wärtsilä Spec Sheet	b	3.9 lb/hr	0.03 tpy
Main Drill Rig Engine 2	2480 kW	Preload Hold & Discharge	9 hr/yr	358 g/kWh	256 kW	4.25 g/kWh	Wärtsilä Spec Sheet	b	2.4 lb/hr	0.01 tpy
Main Drill Rig Engine 2	2480 kW	Jackup to Final Air Gap	3 hr/yr	221 g/kWh	999 kW	1.63 g/kWh	Wärtsilä Spec Sheet	b	3.6 lb/hr	0.01 tpy
Main Drill Rig Engine 2	2480 kW	Prepare for Drilling	18 hr/yr	205.8 g/kWh	2,480 kW	0.70 g/kWh	Wärtsilä Spec Sheet	b	3.8 lb/hr	0.03 tpy
Main Drill Rig Engine 3	2480 kW	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	0.70 g/kWh	Wärtsilä Spec Sheet	b	3.8 lb/hr	2.25 tpy
Main Drill Rig Engine 3	2480 kW	Preload	15 hr/yr	358 g/kWh	256 kW	4.25 g/kWh	Wärtsilä Spec Sheet	b	2.4 lb/hr	0.02 tpy
Main Drill Rig Engine 3	2480 kW	Preload Hold & Discharge	9 hr/yr	358 g/kWh	256 kW	4.25 g/kWh	Wärtsilä Spec Sheet	b	2.4 lb/hr	0.01 tpy
Main Drill Rig Engine 3	2480 kW	Jackup to Final Air Gap	3 hr/yr	221 g/kWh	999 kW	1.63 g/kWh	Wärtsilä Spec Sheet	b	3.6 lb/hr	0.01 tpy
Main Drill Rig Engine 4	2480 kW	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	0.70 g/kWh	Wärtsilä Spec Sheet	b	3.8 lb/hr	2.25 tpy
Emergency Back-up Engine	968 kW	Drilling mode	75 hr/yr	205 g/kWh	968 kW	8.19E-02 lb/MMBtu	AP-42, Table 3.4-1 (10/96)	l	0.7 lb/hr	0.026 tpy
Cement Engine 1	403 kW	Drilling mode	131 hr/yr	29 gal/hr	403 kW	0.4 g/kWh	EPA Ocean Vessel Guidance	b	0.35 lb/hr	0.023 tpy
Cement Engine 2	403 kW	Drilling mode	131 hr/yr	29 gal/hr	403 kW	0.4 g/kWh	EPA Ocean Vessel Guidance	b	0.35 lb/hr	0.023 tpy
Logging Winch	187 kW	Drilling mode	273 hr/yr	13 gal/hr	187 kW	0.4 g/kWh	EPA Ocean Vessel Guidance	b	0.16 lb/hr	0.022 tpy
Heater 1	3.5 MMBtu/hr*	Drilling mode	2,400 hr/yr	26 gal/hr	3.5 MMBtu/hr*	0.2 lb/1,000 gal	AP-42 Table 1.3-3	g	0.0053 lb/hr	0.0064 tpy
Heater 2	3.5 MMBtu/hr*	Drilling mode	2,400 hr/yr	26 gal/hr	3.5 MMBtu/hr*	0.2 lb/1,000 gal	AP-42 Table 1.3-3	g	0.0053 lb/hr	0.0064 tpy
Incinerator	N A	Drilling mode	65 tons/yr	276 lbs/hr	N A	3.00 lbs/ton	AP-42, Table 2.1-12 (10/1996)	c	0.41 lb/hr	0.10 tpy
Fuel Tank 1	N A	Drilling mode	2,400 hrs/yr	470,220 gal/yr**	N A	NA	EPA TANKS		0.0026 lb/hr	0.0032 tpy
Fuel Tank 2	N A	Drilling mode	2,400 hrs/yr	470,220 gal/yr**	N A	NA	EPA TANKS		0.0026 lb/hr	0.0032 tpy
Mud Degassing	20000 scf/day	Drilling mode	100 days/yr	NA	20,000 scf/day	97 lb/day	EPA-450/3-77-026	d	4.04 lb/hr	4.85 tpy
				**Max throughput	*Heat input rate					
Ice Breaker 1										
Main Engine 1	7500 kW	Cruising	675 hr/yr	426 gal/hr	8,046 hp	6.42E-04 lb/hp-h	AP-42, Table 3.4-1 (10/96)	e	5.16 lb/hr	1.74 tpy
Main Engine 2	7500 kW	Cruising	675 hr/yr	426 gal/hr	8,046 hp	6.42E-04 lb/hp-h	AP-42, Table 3.4-1 (10/96)	e	5.16 lb/hr	1.74 tpy
Main Engine 3	7500 kW	Cruising	675 hr/yr	320 gal/hr	6,035 hp	6.42E-04 lb/hp-h	AP-42, Table 3.4-1 (10/96)	e	3.87 lb/hr	1.31 tpy
Main Engine 4	7500 kW	Cruising	675 hr/yr	320 gal/hr	6,035 hp	6.42E-04 lb/hp-h	AP-42, Table 3.4-1 (10/96)	e	3.87 lb/hr	1.31 tpy
Harbor Generator	952.11 hp	Cruising	8 hr/yr	50 gal/hr	952 hp	0.4 g/kWh	EPA Ocean Vessel Guidance	f	0.63 lb/hr	0.003 tpy
Emergency Generator	402.3 hp	Cruising	8 hr/yr	21 gal/hr	402 hp	0.4 g/kWh	EPA Ocean Vessel Guidance	f	0.26 lb/hr	0.0011 tpy
Boiler 1	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	0.2 lb/1,000 gal	AP-42 Table 1.3-3	g	0.0056 lb/hr	0.0019 tpy
Boiler 2	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	0.2 lb/1,000 gal	AP-42 Table 1.3-3	g	0.0056 lb/hr	0.0019 tpy
Incinerator	N A	Cruising	675 hr/yr	175 lb/hr	N A	3.00 lbs/ton	AP-42, Table 2.1-12 (10/1996)	c	0.26 lb/hr	0.09 tpy
					*Heat input rate					
Ice Breaker 2										
Main Engine 1	7500 kW	Cruising	675 hr/yr	426 gal/hr	8,046 hp	6.42E-04 lb/hp-h	AP-42, Table 3.4-1 (10/96)	e	5.16 lb/hr	1.74 tpy
Main Engine 2	7500 kW	Cruising	675 hr/yr	426 gal/hr	8,046 hp	6.42E-04 lb/hp-h	AP-42, Table 3.4-1 (10/96)	e	5.16 lb/hr	1.74 tpy
Main Engine 3	7500 kW	Cruising	675 hr/yr	320 gal/hr	6,035 hp	6.42E-04 lb/hp-h	AP-42, Table 3.4-1 (10/96)	e	3.87 lb/hr	1.31 tpy
Main Engine 4	7500 kW	Cruising	675 hr/yr	320 gal/hr	6,035 hp	6.42E-04 lb/hp-h	AP-42, Table 3.4-1 (10/96)	e	3.87 lb/hr	1.31 tpy
Harbor Generator	952.11 hp	Cruising	8 hr/yr	50 gal/hr	952 hp	0.4 g/kWh	EPA Ocean Vessel Guidance	f	0.63 lb/hr	0.003 tpy
Emergency Generator	402.3 hp	Cruising	8 hr/yr	21 gal/hr	402 hp	0.4 g/kWh	EPA Ocean Vessel Guidance	f	0.26 lb/hr	0.0011 tpy
Boiler 1	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	0.2 lb/1,000 gal	AP-42 Table 1.3-3	g	0.0056 lb/hr	0.0019 tpy
Boiler 2	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	0.2 lb/1,000 gal	AP-42 Table 1.3-3	g	0.0056 lb/hr	0.0019 tpy
Incinerator	N A	Cruising	675 hr/yr	175 lb/hr	N A	3.00 lbs/ton	AP-42, Table 2.1-12 (10/1996)	c	0.26 lb/hr	0.09 tpy
					*Heat input rate					

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Volatile Organic Compounds

Emission Unit Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential VOC Emissions Hourly Emission Rate	Potential VOC Emissions Annual Emission Rate
Anchor Handler Tug Supply Vessel (AHTS)										
Main Engine 1	2710 kW	Cruising	0.08 hr/yr	99 gal/hr	1,400 kW	6.42E-04 lb/hp-h	AP-42, Table 3.4-1 (10/96)	a	1.20 lb/hr	0.0000 tpy
Main Engine 2	2710 kW	Cruising	0.08 hr/yr	99 gal/hr	1,400 kW	6.42E-04 lb/hp-h	AP-42, Table 3.4-1 (10/96)	a	1.20 lb/hr	4.82E-05 tpy
Main Engine 1	2710 kW	Mooring Assist	9 hr/yr	71 gal/hr	1,000 kW	6.42E-04 lb/hp-h	AP-42, Table 3.4-1 (10/96)	a	0.86 lb/hr	3.87E-03 tpy
Main Engine 2	2710 kW	Mooring Assist	9 hr/yr	71 gal/hr	1,000 kW	6.42E-04 lb/hp-h	AP-42, Table 3.4-1 (10/96)	a	0.86 lb/hr	3.87E-03 tpy
Tow Winch Engine	750 kW	Mooring Assist	9 hr/yr	11 gal/hr	150 kW	0.4 g/kWh	EPA Ocean Vessel Guidance	b	0.13 lb/hr	5.95E-04 tpy
Thruster Engine 1	750 kW	Mooring Assist	9 hr/yr	27 gal/hr	375 kW	6.42E-04 lb/hp-h	AP-42, Table 3.4-1 (10/96)	a	0.32 lb/hr	1.45E-03 tpy
Thruster Engine 2	750 kW	Mooring Assist	9 hr/yr	27 gal/hr	375 kW	6.42E-04 lb/hp-h	AP-42, Table 3.4-1 (10/96)	a	0.32 lb/hr	1.45E-03 tpy
Generator 1	500 kW	Anchored	1,196 hr/yr	18 gal/hr	250 kW	0.4 g/kWh	EPA Ocean Vessel Guidance	b	0.22 lb/hr	0.13 tpy
Generator 1	500 kW	Mooring Assist	9 hr/yr	21 gal/hr	300 kW	0.4 g/kWh	EPA Ocean Vessel Guidance	b	0.26 lb/hr	1.19E-03 tpy
Generator 1	500 kW	Cruising	0.08 hr/yr	18 gal/hr	250 kW	0.4 g/kWh	EPA Ocean Vessel Guidance	b	0.22 lb/hr	8.81E-06 tpy
Generator 2	500 kW	DP	1,196 hr/yr	11 gal/hr	150 kW	0.4 g/kWh	EPA Ocean Vessel Guidance	j	0 lb/hr	0 tpy
Emergency Generator	205.89 kW	Non-propulsion	8 hr/yr	20 gal/hr	276 hp	0.4 g/kWh	EPA Ocean Vessel Guidance	b	0.18 lb/hr	7.26E-04 tpy
Oil Spill Response Vessel 1 (Dedicated OSRV)										
Main Engine 1	3070 bhp	Cruising	864 hr/yr	77.5 gal/hr	-- --	0.0819 lb/MMBtu	AP-42, Table 3.4-1 (10/96)	i	0.84 lb/hr	0.36 tpy
Main Engine 2	3070 bhp	Cruising	864 hr/yr	77.5 gal/hr	-- --	0.0819 lb/MMBtu	AP-42, Table 3.4-1 (10/96)	i	0.84 lb/hr	0.36 tpy
Thruster Engine 1	1100 hp	Laying Boom	36 hr/yr	11.6 gal/hr	-- --	6.42E-04 lb/hp-h	AP-42, Table 3.4-1 (10/96)	e	0.71 lb/hr	0.0127 tpy
Thruster Engine 2	1100 hp	Laying Boom	36 hr/yr	10.6 gal/hr	-- --	6.42E-04 lb/hp-h	AP-42, Table 3.4-1 (10/96)	e	0.71 lb/hr	0.0127 tpy
Thruster Engine 3	1100 hp	Laying Boom	36 hr/yr	7.1 gal/hr	-- --	6.42E-04 lb/hp-h	AP-42, Table 3.4-1 (10/96)	e	0.71 lb/hr	0.0127 tpy
Generator 1	710 kW	Cruising/DP/Anchored	1,164 hr/yr	11.54 gal/hr	-- --	0.4 g/kWh	EPA Ocean Vessel Guidance	h	0.14 lb/hr	0.08 tpy
Generator 1	710 kW	Laying Boom	36 hr/yr	11.54 gal/hr	-- --	0.4 g/kWh	EPA Ocean Vessel Guidance	h	0.14 lb/hr	0.003 tpy
Generator 2	710 kW	Cruising/DP	1164 hr/yr	11.54 gal/hr	-- --	0.4 g/kWh	EPA Ocean Vessel Guidance	h	0.14 lb/hr	8.33E-02 tpy
Generator 2	710 kW	Laying Boom	36 hr/yr	11.54 gal/hr	-- --	0.4 g/kWh	EPA Ocean Vessel Guidance	h	0.14 lb/hr	2.58E-03 tpy
Emergency Generator	279 hp	Cruising/DP	8 hr/yr	15 gal/hr	279 hp	0.4 g/kWh	EPA Ocean Vessel Guidance	f	0.18 lb/hr	0.0007 tpy
Oil Spill Response Vessel 2										
Main Engine 1	3070 bhp	Cruising	60 hr/yr	77.5 gal/hr	-- --	0.0819 lb/MMBtu	AP-42, Table 3.4-1 (10/96)	i	0.84 lb/hr	0.025 tpy
Main Engine 2	3070 bhp	Cruising	60 hr/yr	77.5 gal/hr	-- --	0.0819 lb/MMBtu	AP-42, Table 3.4-1 (10/96)	i	0.84 lb/hr	0.025 tpy
Thruster Engine 1	1100 hp	Cruising	- hr/yr	- gal/hr	-- --	0.0819 lb/MMBtu	AP-42, Table 3.4-1 (10/96)	j	0 lb/hr	0.000 tpy
Thruster Engine 2	1100 hp	Cruising	- hr/yr	- gal/hr	-- --	0.0819 lb/MMBtu	AP-42, Table 3.4-1 (10/96)	j	0 lb/hr	0.000 tpy
Thruster Engine 3	1100 hp	Cruising	- hr/yr	- gal/hr	-- --	0.0819 lb/MMBtu	AP-42, Table 3.4-1 (10/96)	j	0 lb/hr	0.000 tpy
Generator 1	710 kW	Cruising/DP	30 hr/yr	11.54 gal/hr	-- --	0.4 g/kWh	EPA Ocean Vessel Guidance	h	0.14 lb/hr	0.002 tpy
Generator 2	710 kW	Cruising/DP	30 hr/yr	11.54 gal/hr	-- --	0.4 g/kWh	EPA Ocean Vessel Guidance	h	0.14 lb/hr	0.0021 tpy
Emergency Generator	279 hp	Cruising/DP	8 hr/yr	15 gal/hr	279 hp	0.4 g/kWh	EPA Ocean Vessel Guidance	h	0.00 lb/hr	0.00 tpy

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Volatile Organic Compounds

Emission Unit Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential VOC Emissions Hourly Emission Rate	Potential VOC Emissions Annual Emission Rate
Offshore Supply Vessels (OSV1 & OSV2)										
Main Engine 1	3151 hp	Cruising	378 hr/yr	75 gal/hr	-- --	0.0819 lb/MMBtu	AP-42, Table 3.4-1 (10/96)	i	0.81 lb/hr	0.15 tpy
Main Engine 1	3151 hp	Idling	133 hr/yr	67 gal/hr	-- --	0.0819 lb/MMBtu	AP-42, Table 3.4-1 (10/96)	i	0.72 lb/hr	0.05 tpy
Main Engine 2	3151 hp	Cruising	378 hr/yr	75 gal/hr	-- --	0.0819 lb/MMBtu	AP-42, Table 3.4-1 (10/96)	i	0.81 lb/hr	0.15 tpy
Main Engine 2	3151 hp	Idling	133 hr/yr	67 gal/hr	-- --	0.0819 lb/MMBtu	AP-42, Table 3.4-1 (10/96)	i	0.72 lb/hr	0.05 tpy
Thruster Engine 1	950 hp	DP	756 hr/yr	45 gal/hr	950 bhp	0.0819 lb/MMBtu	AP-42, Table 3.4-1 (10/96)	i	0.49 lb/hr	0.18 tpy
Thruster Engine 2	950 hp	DP	756 hr/yr	45 gal/hr	950 bhp	0.0819 lb/MMBtu	AP-42, Table 3.4-1 (10/96)	i	0.49 lb/hr	0.18 tpy
Thruster Engine 3	950 hp	DP	756 hr/yr	45 gal/hr	950 bhp	0.0819 lb/MMBtu	AP-42, Table 3.4-1 (10/96)	i	0.49 lb/hr	0.18 tpy
Generator	400 kW	Cruising/DP/Idle	634 hr/yr	27 gal/hr	400 kW	0.4 g/kWh	EPA Ocean Vessel Guidance	b	0.35 lb/hr	0.11 tpy
Generator	400 kW	Cruising/DP/Idle	634 hr/yr	27 gal/hr	400 kW	0.4 g/kWh	EPA Ocean Vessel Guidance	b	0.35 lb/hr	0.11 tpy
Generator	400 kW	Cruising/DP/Idle	0 hr/yr	27 gal/hr	400 kW	0.4 g/kWh	EPA Ocean Vessel Guidance	j	0 lb/hr	0.00 tpy
Emergency Generator	99 kW	Cruising/DP/Idle	8 hr/yr	8 gal/hr	99 kW	0.4 g/kWh	EPA Ocean Vessel Guidance	h	0.09 lb/hr	0.0003 tpy
Ware Vessel (WV) w/ AHTS and OSV backup										
Main Engine 1	2387.2 kW	Cruising	360 hr/yr	87 gal/hr	-- --	0.0819 lb/MMBtu	AP-42, Table 3.4-1 (10/96)	i	0.94 lb/hr	0.17 tpy
Main Engine 2	2387.2 kW	Cruising	360 hr/yr	87 gal/hr	-- --	0.0819 lb/MMBtu	AP-42, Table 3.4-1 (10/96)	i	0.94 lb/hr	0.17 tpy
Main Engine 3	2387.2 kW	DP/Idling	820 hr/yr	81 gal/hr	-- --	0.0819 lb/MMBtu	AP-42, Table 3.4-1 (10/96)	i	0.88 lb/hr	0.36 tpy
Main Engine 4	2387.2 kW	DP/Idling	820 hr/yr	81 gal/hr	-- --	0.0819 lb/MMBtu	AP-42, Table 3.4-1 (10/96)	i	0.88 lb/hr	0.36 tpy
Generator 1	503.54 kW	Cruising/DP/Idling	590 hr/yr	32 gal/hr	504 kW	0.4 g/kWh	EPA Ocean Vessel Guidance	b	0.44 lb/hr	0.13 tpy
Generator 2	503.54 kW	Cruising/DP/Idling	590 hr/yr	32 gal/hr	504 kW	0.4 g/kWh	EPA Ocean Vessel Guidance	b	0.44 lb/hr	0.131 tpy
Generator 3	503.54 kW	Cruising/DP/Idling	0 hr/yr	32 gal/hr	504 kW	0.4 g/kWh	EPA Ocean Vessel Guidance	j	0.00 lb/hr	0.00 tpy
Emergency Generator	170 kW	Cruising/DP/Idling	8 hr/yr	12.8 gal/hr	170 kW	0.4 g/kWh	EPA Ocean Vessel Guidance	b	0.15 lb/hr	0.0006 tpy
34' boom work boats - 4										
WB-1 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.4 g/kWh	EPA Ocean Vessel Guidance	f	0.20 lb/hr	0.0047 tpy
WB-1 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.4 g/kWh	EPA Ocean Vessel Guidance	f	0.20 lb/hr	0.0047 tpy
WB-2 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.4 g/kWh	EPA Ocean Vessel Guidance	f	0.20 lb/hr	0.0047 tpy
WB-2 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.4 g/kWh	EPA Ocean Vessel Guidance	f	0.20 lb/hr	0.0047 tpy
WB-3 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.4 g/kWh	EPA Ocean Vessel Guidance	f	0.20 lb/hr	0.0047 tpy
WB-3 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.4 g/kWh	EPA Ocean Vessel Guidance	f	0.20 lb/hr	0.0047 tpy
WB-4 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.4 g/kWh	EPA Ocean Vessel Guidance	f	0.20 lb/hr	0.0047 tpy
WB-4 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	0.4 g/kWh	EPA Ocean Vessel Guidance	f	0.20 lb/hr	0.0047 tpy
Marine Research Vessel										
Main Engine	850 hp	Cruising	600 hr/yr	45 gal/hr	850 hp	6.42E-04 lb/hp-h	AP-42, Table 3.4-1 (10/96)	e	0.55 lb/hr	0.16 tpy
Generator 1	135 kW	Cruising	600 hr/yr	10 gal/hr	135 kW	0.4 g/kWh	EPA Ocean Vessel Guidance	b	0.12 lb/hr	0.036 tpy
Generator 2	90 kW	Cruising	600 hr/yr	6 gal/hr	90 kW	0.4 g/kWh	EPA Ocean Vessel Guidance	b	0.08 lb/hr	0.024 tpy
Generator 3	40 kW	Cruising	600 hr/yr	3 gal/hr	40 kW	0.4 g/kWh	EPA Ocean Vessel Guidance	b	0.04 lb/hr	0.011 tpy

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Volatile Organic Compounds

Emission Unit Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential VOC Emissions Hourly Emission Rate	Potential VOC Emissions Annual Emission Rate
Spill Storage Tanker										
Main Engine 1	19460 bhp	Cruising	5 hr/yr	1031 gal/hr	19,460 bhp	6.42E-04 lb/hp-h	AP-42, Table 3.4-1 (10/96)	a	12.48 lb/hr	0.0295 tpy
Generator 1	600 kW	Anchored/Cruising	29 hr/yr	43 gal/hr	600 kW	0.4 g/kWh	EPA Ocean Vessel Guidance	b	0.53 lb/hr	0.0077 tpy
Generator 2	600 kW	Cruising	29 hr/yr	43 gal/hr	600 kW	0.4 g/kWh	EPA Ocean Vessel Guidance	b	0.53 lb/hr	0.008 tpy
Generator 3	600 kW	Anchored	- hr/yr	0 gal/hr	- kW	0.4 g/kWh	EPA Ocean Vessel Guidance	j	0 lb/hr	0.000 tpy
Emergency Generator	350 kW	Anchored	- hr/yr	0 gal/hr	- kW	0.4 g/kWh	EPA Ocean Vessel Guidance	j	0 lb/hr	0.000 tpy
Boiler 1	4900 kg/hr	Anchored/Cruising	53 hr/yr	4900 kg/hr	212 MMBtu/hr*	0.2 lb/1,000 gal	AP-42 Table 1.3-3	k	0.32 lb/hr	0.008 tpy
Boiler 2	4900 kg/hr	Anchored	- hr/yr	0 kg/hr	- MMBtu/hr*	0.2 lb/1,000 gal	AP-42 Table 1.3-3	j	0 lb/hr	0.000 tpy

*Heat input rate

All Vessels Fuel Tanks

Fuel Tank	N A	NA	2,400 hr/yr	2,880,158 gal/yr*	N A	NA	EPA TANKS		0.012 lb/hr	0.015 tpy

*Max throughput

1 1.341 hp/kW; 454g/lb; Break Specific Fuel Consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1).
2 Ultra Low Sulfur Diesel #1 (ULSD): Fuel Heat Content of 132,096 Btu/gal; Density of 0.8094 kg/L; so 6.74 lbs/gal diesel is assumed (Tesoro/Kenai Refinery).
3 Incinerator Fuel Heat Content (Waste) of 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17). Incinerators will burn ULSD for ignition purposes only.
4 Fuel Consumption has been calculated from Power Output where not available from manufacturer specifications.
5 An equivalent of two main drilling engines at 100% load will operate continuously for up to 4800 hours per season. All four main drilling engines will operate at 100% load for up to 48 hours per season.
6 Mud degassing rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977).
7 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 18 times per year).
8 Drill Rig Incinerator Operating Hours (65 tons/season) = (840 ft3 waste/wk) ÷ (27 ft3/yd3) x (14 wks/season) x (300 lbs/yd3 (EPA factor)) ÷ (2,000 lb/ton);
840 ft3 = 9,333 lbs/week material produced for incineration, 300 lbs/cubic foot density for waste, incinerator same size as on Discoverer (276 bs/hr).
9 OSV & Ware Vessel assume operation of up to 100 hrs/season for open water idling in the 25 mile zone, if weather delays off-loading.
10 EPA Ocean Vessel Guidance is "Emission Inventories for Ocean-Going Vessels Using Category 3 Propulsion Engines In or Near the United States" (EPA420-D-07-007, December, 2007) -Table 3-55 Marine Distillate Fuel.
11 EPA Ocean Vessel Guidance (OVG) was used for auxiliary engines. AP-42 Emission Factors were used for propulsion engines. OVG was used for the propulsion engines on the work boats because it was assumed that they would have similar emissions to auxiliary engines due to their small size.
12 AP-42 emission factors were used for the drill rig main engines because it provided higher emissions rates than EPA OVG. OVG was used for the drill rig's cement engines and logging winch because these are new engines which will have emissions similar to marine auxiliary engines.
13 The emissions factors on the spec sheets for the drill rig main engines were used for VOC because they were higher than both AP-42 and OVG, providing a more conservative emissions rate.
14 It is assumed that brake horse power (bhp) is approximately equal to horse power (hp).
15 Emissions (tons) = Hourly Emission Rate (lb/hr) x Allowable Operation (hr/yr) x (1 ton/2000 lb).
16 Methane was subtracted from AP-42 Emission Factors for TOC for engines greater than 600 hp. HC Emission Factor was used from EPA Ocean Vessel Guidance. Methane data was not available for engines less than 600 hp.
15 Fuel Tank VOC Emissions/Emission Rates are directly from EPA's TANKS Emissions Estimation Software, Version 4.09D: http://www.epa.gov/ttnchie1/software/tanks/index.html
16 Mud Degassing Emission Factor (96.9 lb VOC/day) = (0.4 Mg HC/day) x (2,204.6 lb/Mg) x (11% VOC/100% HC)
17 AP-42 Suggests 91% of TOC is nonmethane

Note
a Hourly Emission Rate (lb/hr) = Emission Factor (lb/hp-h) x Max Output Capacity (kW) x (1.3405 hp/kW)
b Hourly Emission Rate (lb/hr) = Emission Factor (g/kWh) x Max Output Capacity (kW) x (1 lb/454 g)
c Hourly Emission Rate (lb/hr) = Emission Factor (lb/ton) x Max Fuel Usage (lb/hr) x (1 ton/2,000 lb)
d Hourly Emission Rate (lb/hr) = Emission Factor (lb/day) ÷ (24 hr/day)
e Hourly Emission Rate (lb/hr) = Emission Factor (lb/hp-h) x Max Output Capacity (hp)
f Hourly Emission Rate (lb/hr) = Emission Factor (g/kWh) x Max Output Capacity (hp) ÷ (1.3405 hp/kW) ÷ (454 g/lb)
g Hourly Emission Rate (lb/hr) = Emission Factor (lb/1,000 gal) x Max Fuel Usage (gal/hr)
h Hourly Emission Rate (lb/hr) = Emission Factor (g/kWh) x Max Fuel Usage (gal/hr) / Fuel Consumption Rate (7,000 Btu/hp-h) x Fuel Heat Content (132,096 Btu/gal) ÷ (1.3405 hp/kW) ÷ (454 g/lb)
i Hourly Emission Rate (lb/hr) = Emission Factor (lb/MMBtu) x Max Fuel Usage (gal/hr) x Fuel Heat Content (132,096 Btu/gal)
j Not operating while within 25 miles of the rig
k Hourly Emission Rate (lb/hr) = Emission Factor (lb/1,000 gal) x Max Fuel Usage (kg/hr) x (1000g/kg) x (1lb/454g) x Fuel Density (1gal/6.74lb)
l Hourly Emission Rate (lb/hr) = Emission Factor (lb/MMBtu) x Max Output Capacity (kW) x Max Fuel Usage (g/kW-h) x (1lb/454g) x Fuel Density (1lb/454g) x Fuel Heat Content (132,096Btu/gal)

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Sulfur Oxides

	Emission Unit Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential SO2 Emissions Hourly Emission Rate	Potential SO2 Emissions Annual Emission Rate
Drill Rig Equipment											
	Main Drill Rig Engine 1	2480 kW	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	2.02E-04 lb/gal	Mass Balance	h	3.37E-02 lb/hr	1.99E-02 tpy
	Main Drill Rig Engine 1	2480 kW	Preload	15 hr/yr	217.0 g/kWh	1,249 kW	2.02E-04 lb/gal	Mass Balance	h	1.79E-02 lb/hr	1.34E-04 tpy
	Main Drill Rig Engine 1	2480 kW	Preload Hold & Discharge	9 hr/yr	358.0 g/kWh	256 kW	2.02E-04 lb/gal	Mass Balance	h	6.06E-03 lb/hr	2.73E-05 tpy
	Main Drill Rig Engine 1	2480 kW	Jackup to Final Air Gap	3 hr/yr	221.0 g/kWh	999 kW	2.02E-04 lb/gal	Mass Balance	h	1.46E-02 lb/hr	2.19E-05 tpy
	Main Drill Rig Engine 1	2480 kW	Prepare for Drilling	18 hr/yr	205.8 g/kWh	2,480 kW	2.02E-04 lb/gal	Mass Balance	h	3.37E-02 lb/hr	3.04E-04 tpy
	Main Drill Rig Engine 2	2480 kW	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	2.02E-04 lb/gal	Mass Balance	h	3.37E-02 lb/hr	1.99E-02 tpy
	Main Drill Rig Engine 2	2480 kW	Preload	15 hr/yr	217.0 g/kWh	1,249 kW	2.02E-04 lb/gal	Mass Balance	h	1.79E-02 lb/hr	1.34E-04 tpy
	Main Drill Rig Engine 2	2480 kW	Preload Hold & Discharge	9 hr/yr	358.0 g/kWh	256 kW	2.02E-04 lb/gal	Mass Balance	h	6.06E-03 lb/hr	2.73E-05 tpy
	Main Drill Rig Engine 2	2480 kW	Jackup to Final Air Gap	3 hr/yr	221.0 g/kWh	999 kW	2.02E-04 lb/gal	Mass Balance	h	1.46E-02 lb/hr	2.19E-05 tpy
	Main Drill Rig Engine 2	2480 kW	Prepare for Drilling	18 hr/yr	205.8 g/kWh	2,480 kW	2.02E-04 lb/gal	Mass Balance	h	3.37E-02 lb/hr	3.04E-04 tpy
	Main Drill Rig Engine 3	2480 kW	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	2.02E-04 lb/gal	Mass Balance	h	3.37E-02 lb/hr	1.99E-02 tpy
	Main Drill Rig Engine 3	2480 kW	Preload	15 hr/yr	358.0 g/kWh	256 kW	2.02E-04 lb/gal	Mass Balance	h	0.01 lb/hr	4.54E-05 tpy
	Main Drill Rig Engine 3	2480 kW	Preload Hold & Discharge	9 hr/yr	358.0 g/kWh	256 kW	2.02E-04 lb/gal	Mass Balance	h	0.01 lb/hr	2.73E-05 tpy
	Main Drill Rig Engine 3	2480 kW	Jackup to Final Air Gap	3 hr/yr	221.0 g/kWh	999 kW	2.02E-04 lb/gal	Mass Balance	h	0.01 lb/hr	2.19E-05 tpy
	Main Drill Rig Engine 4	2480 kW	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	2.02E-04 lb/gal	Mass Balance	h	3.37E-02 lb/hr	1.99E-02 tpy
	Emergency Back-up Engine	968 kW	Drilling mode	75 hr/yr	205.0 g/kWh	968 kW	2.02E-04 lb/gal	Mass Balance	h	1.31E-02 lb/hr	4.92E-04 tpy
	Cement Engine 1	403 kW	Drilling mode	131 hr/yr	29 gal/hr	403 kW	2.02E-04 lb/gal	Mass Balance	d	5.86E-03 lb/hr	3.84E-04 tpy
	Cement Engine 2	403 kW	Drilling mode	131 hr/yr	29 gal/hr	403 kW	2.02E-04 lb/gal	Mass Balance	d	5.86E-03 lb/hr	3.84E-04 tpy
	Logging Winch	187 kW	Drilling mode	273 hr/yr	13 gal/hr	187 kW	2.02E-04 lb/gal	Mass Balance	a	2.69E-03 lb/hr	3.67E-04 tpy
	Heater 1	3.5 MMBtu/hr*	Drilling mode	2,400 hr/yr	26 gal/hr	3.5 MMBtu/hr*	2.02E-04 lb/gal	Mass Balance	e	5.36E-03 lb/hr	6.43E-03 tpy
	Heater 2	3.5 MMBtu/hr*	Drilling mode	2,400 hr/yr	26 gal/hr	3.5 MMBtu/hr*	2.02E-04 lb/gal	Mass Balance	e	5.36E-03 lb/hr	6.43E-03 tpy
	Incinerator	N A	Drilling mode	65 tons/yr	276 lbs/hr	N A	2.5 lbs/ton	AP-42, Table 2.1-12	b	3.45E-01 lb/hr	8.17E-02 tpy
	Fuel Tank 1	N A	Drilling mode	2,400 hrs/yr	470,220 gal/yr**	N A	NA	NA		NA	NA
	Fuel Tank 2	N A	Drilling mode	2,400 hrs/yr	470,220 gal/yr**	N A	NA	NA		NA	NA
	Mud Degassing	20000 scf/day	Drilling mode	100 days/yr	NA	20,000 scf/day	NA	NA		NA	NA
					**Max throughput	*Heat input rate					
Ice Breaker 1											
	Main Engine 1	7500 kW	Cruising	675 hr/yr	426 gal/hr	8,046 hp	2.02E-04 lb/gal	Mass Balance	c	8.62E-02 lb/hr	2.91E-02 tpy
	Main Engine 2	7500 kW	Cruising	675 hr/yr	426 gal/hr	8,046 hp	2.02E-04 lb/gal	Mass Balance	c	8.62E-02 lb/hr	2.91E-02 tpy
	Main Engine 3	7500 kW	Cruising	675 hr/yr	320 gal/hr	6,035 hp	2.02E-04 lb/gal	Mass Balance	c	6.47E-02 lb/hr	2.18E-02 tpy
	Main Engine 4	7500 kW	Cruising	675 hr/yr	320 gal/hr	6,035 hp	2.02E-04 lb/gal	Mass Balance	c	6.47E-02 lb/hr	2.18E-02 tpy
	Harbor Generator	952.11 hp	Cruising	8 hr/yr	50 gal/hr	952 hp	2.02E-04 lb/gal	Mass Balance	c	1.02E-02 lb/hr	4.08E-05 tpy
	Emergency Generator	402.3 hp	Cruising	8 hr/yr	21 gal/hr	402 hp	2.02E-04 lb/gal	Mass Balance	c	4.31E-03 lb/hr	1.72E-05 tpy
	Boiler 1	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	4 MMBtu/hr*	2.02E-04 lb/gal	Mass Balance	d	5.66E-03 lb/hr	1.91E-03 tpy
	Boiler 2	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	4 MMBtu/hr*	2.02E-04 lb/gal	Mass Balance	d	5.66E-03 lb/hr	1.91E-03 tpy
	Incinerator	N A	Cruising	675 hr/yr	lb/hr	N A	2.5 lbs/ton	AP-42, Table 2.1-12	b	2.19E-01 lb/hr	7.38E-02 tpy
						*Heat input rate					
Ice Breaker 2											
	Main Engine 1	7500 kW	Cruising	675 hr/yr	175 426 gal/hr	8,046 hp	2.02E-04 lb/gal	Mass Balance	c	8.62E-02 lb/hr	2.91E-02 tpy
	Main Engine 2	7500 kW	Cruising	675 hr/yr	426 gal/hr	8,046 hp	2.02E-04 lb/gal	Mass Balance	c	8.62E-02 lb/hr	2.91E-02 tpy
	Main Engine 3	7500 kW	Cruising	675 hr/yr	320 gal/hr	6,035 hp	2.02E-04 lb/gal	Mass Balance	c	6.47E-02 lb/hr	2.18E-02 tpy
	Main Engine 4	7500 kW	Cruising	675 hr/yr	320 gal/hr	6,035 hp	2.02E-04 lb/gal	Mass Balance	c	6.47E-02 lb/hr	2.18E-02 tpy
	Harbor Generator	952.11 hp	Cruising	8 hr/yr	50 gal/hr	952 hp	2.02E-04 lb/gal	Mass Balance	c	1.02E-02 lb/hr	4.08E-05 tpy
	Emergency Generator	402.3 hp	Cruising	8 hr/yr	21 gal/hr	402 hp	2.02E-04 lb/gal	Mass Balance	c	4.31E-03 lb/hr	1.72E-05 tpy
	Boiler 1	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	4 MMBtu/hr*	2.02E-04 lb/gal	Mass Balance	d	5.66E-03 lb/hr	1.91E-03 tpy
	Boiler 2	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	4 MMBtu/hr*	2.02E-04 lb/gal	Mass Balance	d	5.66E-03 lb/hr	1.91E-03 tpy
	Incinerator	N A	Cruising	675 hr/yr	lb/hr	N A	2.5 lbs/ton	AP-42, Table 2.1-12	b	2.19E-01 lb/hr	7.38E-02 tpy
						*Heat input rate					

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Sulfur Oxides

Emission Unit Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential SO2 Emissions Hourly Emission Rate	Potential SO2 Emissions Annual Emission Rate
Anchor Handler Tug Supply Vessel (AHTS)										
Main Engine 1	2710 kW	Cruising	0.08 hr/yr	gal/hr	1,400 kW	2.02E-04 lb/gal	Mass Balance	a	2.01E-02 lb/hr	8.04E-07 tpy
Main Engine 2	2710 kW	Cruising	0.08 hr/yr	99 gal/hr	1,400 kW	2.02E-04 lb/gal	Mass Balance	a	2.01E-02 lb/hr	8.04E-07 tpy
Main Engine 1	2710 kW	Mooring Assist	9 hr/yr	71 gal/hr	1,000 kW	2.02E-04 lb/gal	Mass Balance	a	1.44E-02 lb/hr	6.46E-05 tpy
Main Engine 2	2710 kW	Mooring Assist	9 hr/yr	99 71 gal/hr	1,000 kW	2.02E-04 lb/gal	Mass Balance	a	1.44E-02 lb/hr	6.46E-05 tpy
Tow Winch Engine	750 kW	Mooring Assist	9 hr/yr	11 gal/hr	150 kW	2.02E-04 lb/gal	Mass Balance	a	2.15E-03 lb/hr	9.70E-06 tpy
Thruster Engine 1	750 kW	Mooring Assist	9 hr/yr	27 gal/hr	375 kW	2.02E-04 lb/gal	Mass Balance	a	5.39E-03 lb/hr	2.42E-05 tpy
Thruster Engine 2	750 kW	Mooring Assist	9 hr/yr	27 gal/hr	375 kW	2.02E-04 lb/gal	Mass Balance	a	5.39E-03 lb/hr	2.42E-05 tpy
Generator 1	500 kW	Anchored	1,196 hr/yr	18 gal/hr	250 kW	2.02E-04 lb/gal	Mass Balance	a	3.59E-03 lb/hr	2.15E-03 tpy
Generator 1	500 kW	Mooring Assist	9 hr/yr	21 gal/hr	300 kW	2.02E-04 lb/gal	Mass Balance	a	4.31E-03 lb/hr	1.94E-05 tpy
Generator 1	500 kW	Cruising	0.08 hr/yr	18 gal/hr	250 kW	2.02E-04 lb/gal	Mass Balance	a	3.59E-03 lb/hr	1.44E-07 tpy
Generator 2	500 kW	DP	1,196 hr/yr	11 gal/hr	150 kW	2.02E-04 lb/gal	Mass Balance	a	2.15E-03 lb/hr	1.29E-03 tpy
Emergency Generator	205.89 kW	Non-propulsion	8 hr/yr	20 gal/hr	276 hp	2.02E-04 lb/gal	Mass Balance	a	2.96E-03 lb/hr	1.18E-05 tpy
Oil Spill Response Vessel 1 (Dedicated OSRV)										
Main Engine 1	3070 bhp	Cruising	864 hr/yr	78 gal/hr	-- --	2.0E-04 lb/gal	Mass Balance	d	1.57E-02 lb/hr	6.77E-03 tpy
Main Engine 2	3070 bhp	Cruising	864 hr/yr	78 gal/hr	-- --	2.0E-04 lb/gal	Mass Balance	d	1.57E-02 lb/hr	6.77E-03 tpy
Thruster Engine 1	1100 hp	Laying Boom	36 hr/yr	12 gal/hr	-- --	2.0E-04 lb/gal	Mass Balance	d	2.35E-03 lb/hr	4.22E-05 tpy
Thruster Engine 2	1100 hp	Laying Boom	36 hr/yr	11 gal/hr	-- --	2.0E-04 lb/gal	Mass Balance	d	2.14E-03 lb/hr	3.86E-05 tpy
Thruster Engine 3	1100 hp	Laying Boom	36 hr/yr	7 gal/hr	-- --	2.0E-04 lb/gal	Mass Balance	d	1.44E-03 lb/hr	2.58E-05 tpy
Generator 1	710 kW	Cruising/DP/Anchored	1,164 hr/yr	12 gal/hr	-- --	2.0E-04 lb/gal	Mass Balance	d	2.33E-03 lb/hr	1.36E-03 tpy
Generator 1	710 kW	Laying Boom	36 hr/yr	12 gal/hr	-- --	2.0E-04 lb/gal	Mass Balance	d	2.33E-03 lb/hr	4.20E-05 tpy
Generator 2	710 kW	Cruising/DP	1,164 hr/yr	11.54 gal/hr	-- --	2.0E-04 lb/gal	Mass Balance	d	2.33E-03 lb/hr	1.36E-03 tpy
Generator 2	710 kW	Laying Boom	36 hr/yr	11.54 gal/hr	-- --	2.0E-04 lb/gal	Mass Balance	d	2.33E-03 lb/hr	4.20E-05 tpy
Emergency Generator	279 hp	Cruising/DP	8 hr/yr	15 gal/hr	279 hp	2.0E-04 lb/gal	Mass Balance	a	2.99E-03 lb/hr	1.20E-05 tpy
Oil Spill Response Vessel 2										
Main Engine 1	3070 bhp	Cruising	60 hr/yr	78 gal/hr	-- --	2.0E-04 lb/gal	Mass Balance	d	1.57E-02 lb/hr	4.70E-04 tpy
Main Engine 2	3070 bhp	Cruising	60 hr/yr	78 gal/hr	-- --	2.0E-04 lb/gal	Mass Balance	d	1.57E-02 lb/hr	4.70E-04 tpy
Thruster Engine 1	1100 hp	Cruising	0 hr/yr	- gal/hr	-- --	2.0E-04 lb/gal	Mass Balance	f	0 lb/hr	0.00E+00 tpy
Thruster Engine 2	1100 hp	Cruising	0 hr/yr	- gal/hr	-- --	2.0E-04 lb/gal	Mass Balance	f	0 lb/hr	0.00E+00 tpy
Thruster Engine 3	1100 hp	Cruising	0 hr/yr	- gal/hr	-- --	2.0E-04 lb/gal	Mass Balance	f	0 lb/hr	0.00E+00 tpy
Generator 1	710 kW	Cruising/DP	30 hr/yr	12 gal/hr	-- --	2.0E-04 lb/gal	Mass Balance	d	2.33E-03 lb/hr	3.50E-05 tpy
Generator 2	710 kW	Cruising/DP	30 hr/yr	12 gal/hr	-- --	2.0E-04 lb/gal	Mass Balance	d	2.33E-03 lb/hr	3.50E-05 tpy
Emergency Generator	279 hp	Cruising/DP	8 hr/yr	15 gal/hr	279 hp	2.0E-04 lb/gal	Mass Balance	d	0.0E+00 lb/hr	0.00E+00 tpy

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Sulfur Oxides

	Emission Unit Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential SO2 Emissions Hourly Emission Rate	Potential SO2 Emissions Annual Emission Rate
Offshore Supply Vessels (OSV1 & OSV2)											
	Main Engine 1	3151 hp	Cruising	378 hr/yr	75 gal/hr	-- --	2.0E-04 lb/gal	Mass Balance	d	1.51E-02 lb/hr	2.85E-03 tpy
	Main Engine 1	3151 hp	Idling	133 hr/yr	67 gal/hr	-- --	2.0E-04 lb/gal	Mass Balance	d	1.35E-02 lb/hr	9.01E-04 tpy
	Main Engine 2	3151 hp	Cruising	378 hr/yr	75 gal/hr	-- --	2.0E-04 lb/gal	Mass Balance	d	1.51E-02 lb/hr	2.85E-03 tpy
	Main Engine 2	3151 hp	Idling	133 hr/yr	67 gal/hr	-- --	2.0E-04 lb/gal	Mass Balance	d	1.35E-02 lb/hr	9.01E-04 tpy
	Thruster Engine 1	950 hp	DP	756 hr/yr	45 gal/hr	950 bhp	2.0E-04 lb/gal	Mass Balance	d	9.10E-03 lb/hr	3.44E-03 tpy
	Thruster Engine 2	950 hp	DP	756 hr/yr	45 gal/hr	950 bhp	2.0E-04 lb/gal	Mass Balance	d	9.10E-03 lb/hr	3.44E-03 tpy
	Thruster Engine 3	950 hp	DP	756 hr/yr	45 gal/hr	950 bhp	2.0E-04 lb/gal	Mass Balance	d	9.10E-03 lb/hr	3.44E-03 tpy
	Generator	400 kW	Cruising/DP/Idle	633.5 hr/yr	27 gal/hr	400 kW	2.0E-04 lb/gal	Mass Balance	d	5.46E-03 lb/hr	1.73E-03 tpy
	Generator	400 kW	Cruising/DP/Idle	633.5 hr/yr	27 gal/hr	400 kW	2.0E-04 lb/gal	Mass Balance	d	5.46E-03 lb/hr	1.73E-03 tpy
	Generator	400 kW	Cruising/DP/Idle	0 hr/yr	27 gal/hr	400 kW	2.0E-04 lb/gal	Mass Balance	f	0 lb/hr	0.00E+00 tpy
	Emergency Generator	99 kW	Cruising/DP/Idle	8 hr/yr	8 gal/hr	99 kW	2.0E-04 lb/gal	Mass Balance	d	1.62E-03 lb/hr	6.47E-06 tpy
Ware Vessel (WV) w/ AHTS and OSV backup											
	Main Engine 1	2387.2 kW	Cruising	360 hr/yr	87 gal/hr	-- --	2.0E-04 lb/gal	Mass Balance	d	1.76E-02 lb/hr	3.17E-03 tpy
	Main Engine 2	2387.2 kW	Cruising	360 hr/yr	87 gal/hr	-- --	2.0E-04 lb/gal	Mass Balance	d	1.76E-02 lb/hr	3.17E-03 tpy
	Main Engine 3	2387.2 kW	DP/Idling	820 hr/yr	81 gal/hr	-- --	2.0E-04 lb/gal	Mass Balance	d	1.64E-02 lb/hr	6.72E-03 tpy
	Main Engine 4	2387.2 kW	DP/Idling	820 hr/yr	81 gal/hr	-- --	2.0E-04 lb/gal	Mass Balance	d	1.64E-02 lb/hr	6.72E-03 tpy
	Generator 1	503.54 kW	Cruising/DP/Idling	590 hr/yr	32 gal/hr	504 kW	2.0E-04 lb/gal	Mass Balance	d	6.47E-03 lb/hr	1.91E-03 tpy
	Generator 2	503.54 kW	Cruising/DP/Idling	590 hr/yr	32 gal/hr	504 kW	2.0E-04 lb/gal	Mass Balance	d	6.47E-03 lb/hr	1.91E-03 tpy
	Generator 3	503.54 kW	Cruising/DP/Idling	0 hr/yr	32 gal/hr	504 kW	2.0E-04 lb/gal	Mass Balance	f	0 lb/hr	0.00E+00 tpy
	Emergency Generator	170 kW	Cruising/DP/Idling	8 hr/yr	13 gal/hr	170 kW	2.0E-04 lb/gal	Mass Balance	d	2.59E-03 lb/hr	1.04E-05 tpy
34' boom work boats - 4											
	WB-1 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	2.02E-04 lb/gal	Mass Balance	d	3.05E-03 lb/hr	7.33E-05 tpy
	WB-1 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	2.02E-04 lb/gal	Mass Balance	d	3.05E-03 lb/hr	7.33E-05 tpy
	WB-2 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	2.02E-04 lb/gal	Mass Balance	d	3.05E-03 lb/hr	7.33E-05 tpy
	WB-2 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	2.02E-04 lb/gal	Mass Balance	d	3.05E-03 lb/hr	7.33E-05 tpy
	WB-3 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	2.02E-04 lb/gal	Mass Balance	d	3.05E-03 lb/hr	7.33E-05 tpy
	WB-3 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	2.02E-04 lb/gal	Mass Balance	d	3.05E-03 lb/hr	7.33E-05 tpy
	WB-4 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	2.02E-04 lb/gal	Mass Balance	d	3.05E-03 lb/hr	7.33E-05 tpy
	WB-4 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	2.02E-04 lb/gal	Mass Balance	d	3.05E-03 lb/hr	7.33E-05 tpy
Marine Research Vessel											
	Main Engine	850 hp	Cruising	600 hr/yr	45 gal/hr	850 hp	2.02E-04 lb/gal	Mass Balance	c	9.11E-03 lb/hr	2.73E-03 tpy
	Generator 1	135 kW	Cruising	600 hr/yr	10 gal/hr	135 kW	2.02E-04 lb/gal	Mass Balance	a	1.94E-03 lb/hr	5.82E-04 tpy
	Generator 2	90 kW	Cruising	600 hr/yr	6 gal/hr	90 kW	2.02E-04 lb/gal	Mass Balance	a	1.29E-03 lb/hr	3.88E-04 tpy
	Generator 3	40 kW	Cruising	600 hr/yr	3 gal/hr	40 kW	2.02E-04 lb/gal	Mass Balance	a	5.75E-04 lb/hr	1.72E-04 tpy

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Sulfur Oxides

	Emission Unit Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential SO2 Emissions Hourly Emission Rate	Potential SO2 Emissions Annual Emission Rate
Spill Storage Tanker											
	Main Engine 1	19460 bhp	Cruising	4.72 hr/yr	1,031 gal/hr	19,460 bhp	2.02E-04 lb/gal	Mass Balance	a	2.09E-01 lb/hr	4.92E-04 tpy
	Generator 1	600 kW	Anchored/Cruising	29 hr/yr	43 gal/hr	600 kW	2.02E-04 lb/gal	Mass Balance	a	8.62E-03 lb/hr	1.25E-04 tpy
	Generator 2	600 kW	Cruising	29 hr/yr	43 gal/hr	600 kW	2.02E-04 lb/gal	Mass Balance	a	8.62E-03 lb/hr	1.25E-04 tpy
	Generator 3	600 kW	Anchored	0 hr/yr	- gal/hr	- kW	2.02E-04 lb/gal	Mass Balance	f	0 lb/hr	0 tpy
	Emergency Generator	350 kW	Anchored	0 hr/yr	- gal/hr	- kW	2.02E-04 lb/gal	Mass Balance	f	0 lb/hr	0 tpy
	Boiler 1	4900 kg/hr	Anchored/Cruising	52.72 hr/yr	4,900 kg/hr	212 MMBtu/hr*	2.02E-04 lb/gal	Mass Balance	g	0.32 lb/hr	8.54E-03 tpy
	Boiler 2	4900 kg/hr	Anchored	0 hr/yr	- kg/hr	- MMBtu/hr*	2.02E-04 lb/gal	Mass Balance	f	0 lb/hr	0.00 tpy

*Heat input rate

All Vessels Fuel Tanks											
	Fuel Tank	N A	NA	2,400 hr/yr	2,880,158 gal/yr*	N A	NA	NA		NA	NA

*Max throughput

1 1.341 hp/kW; 454g/lb; Break Specific Fuel Consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1).
2 Ultra Low Sulfur Diesel #1 (ULSD): Fuel Heat Content of 132,096 Btu/gal; Density of 0.8094 kg/L; so 6.74 lbs/gal diesel is assumed (Tesoro/Kenai Refinery).
3 Incinerator Fuel Heat Content (Waste) of 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17). Incinerators will burn ULSD for ignition purposes only.
4 Fuel Consumption has been calculated from Power Output where not available from manufacturer specifications.
5 An equivalent of two main drilling engines at 100% load will operate continuously for up to 4800 hours per season. All four main drilling engines will operate at 100% load for up to 48 hours per season.
6 Mud degassing rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977).
7 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 18 times per year).
8 Drill Rig Incinerator Operating Hours (65 tons/season) = (840 ft3 waste/wk) ÷ (27 ft3/yd3) x (14 wks/season) x (300 lbs/yd3 (EPA factor)) ÷ (2,000 lb/ton);
840 ft3 = 9,333 lbs/week material produced for incineration, 300 lbs/cubic foot density for waste, incinerator same size as on Discoverer (276 bs/hr).
9 OSV & Ware Vessel assume operation of up to 100 hrs/season for open water idling in the 25 mile zone, if weather delays off-loading.
10 EPA Ocean Vessel Guidance is "Emission Inventories for Ocean-Going Vessels Using Category 3 Propulsion Engines In or Near the United States" (EPA420-D-07-007, December, 2007) -Table 3-55 Marine Distillate Fuel.
11 It is assumed that brake horse power (bhp) is approximately equal to horse power (hp).
12 Emissions (tons) = Hourly Emission Rate (lb/hr) x Allowable Operation (hr/yr) x (1 ton/2000 lb).
13 SO2 Emission Factor by Mass Balance = Fuel Sulfur Content (weight %S / 100%) x Fuel Density (6.74 lb/gal) x MW of SO2 (64 lb/lb mol SO2) ÷ MW of S (32 lb/lb mol S)

Note
a Hourly Emission Rate (lb/hr) = Emission Factor (lb/gal) x Max Output Capacity (kW) x (1.3405 hp/kW) x Fuel Consumption Rate (7,000 Btu/hp-h) x Fuel Heat Content (1 gal/132,096 Btu)
b Hourly Emission Rate (lb/hr) = Emission Factor (lb/ton) x Max Fuel Usage (lb/hr) x (1 ton/2,000 lb)
c Hourly Emission Rate (lb/hr) = Emission Factor (lb/gal) x Max Output Capacity (hp) x Fuel Consumption Rate (7,000 Btu/hp-h) ÷ Fuel Heat Content (132,096 Btu/gal)
d Hourly Emission Rate (lb/hr) = Emission Factor (lb/gal) x Max Fuel Usage (gal/hr)
e Hourly Emission Rate (lb/hr) = Emission Factor (lb/gal) x Max Output Capacity (MMBtu/hr) ÷ Fuel Heat Content (132,096 Btu/gal)
f Not operating while within 25 miles of the rig
g Hourly Emission Rate (lb/hr) = Emission Factor (lb/gal) x Max Fuel Usage (kg/hr) x (1000g/kg) x (lb/454g) x Fuel Density (1 gal/6.74lb)
h Hourly Emission Rate (lb/hr) = Emission Factor (lb/gal) x Max Fuel Usage (g/kW-h) x Max output Capacity (kW) x (1lb/454g) x Fuel Density (1gal/6.74lb)

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Hydrogen Sulfide

Emission Unit Description	Type	Fuel Type	Allowable Operation	Fuel Consumption	Power Output	Emission Factor Reference		Potential H2S Emissions	
								Hourly Emission Rate	Annual Emission Rate
Drill Rig Equipment									
Mud Degassing	Water Based Mud & Cuttings	Well Gas	100 days/yr	20,000 scf/day	250 ppmv H2S	CPAI	a,b	0.0181 lb/hr	0.0217 tpy

1 H2S Density = 1.393 g/L; assume 28.32 L/scf;

2 Mud degassing rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977).

3 Emissions (tons) = Hourly Emission Rate (lb/hr) x Allowable Operation (hr/yr) x (1 ton/2000 lb).

Note

a Hourly Emission Rate (lb/hr) = Emission Factor (250 ppmv H2S) x Max Output Capacity (scf/day) x (28.317L/scf)÷ (454 g/lb) ÷ (24hr/day) x (1.393 g/L)

b Emissions (tons) = Hourly emission rate (lb/hr) x Allowable Operation (days/yr) x (24 hr/day)÷ (2,000 lb/ton)

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Lead

	Emission Unit Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential Lead Emissions Hourly Emission Rate	Potential Lead Emissions Annual Emission Rate
Drill Rig Equipment											
	Main Drill Rig Engine 1	2480 kW	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	h	6.4E-04 lb/hr	3.77E-04 tpy
	Main Drill Rig Engine 1	2480 kW	Preload	hr/yr	217 g/kWh	1,249 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	h	3.4E-04 lb/hr	2.54E-06 tpy
	Main Drill Rig Engine 1	2480 kW	Preload Hold & Discharge	hr/yr	358 g/kWh	256 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	h	1.1E-04 lb/hr	5.16E-07 tpy
	Main Drill Rig Engine 1	2480 kW	Jackup to Final Air Gap	15 hr/yr	221 g/kWh	999 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	h	2.8E-04 lb/hr	4.15E-07 tpy
	Main Drill Rig Engine 1	2480 kW	Prepare for Drilling	9 hr/yr	205.8 g/kWh	2,480 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	h	6.4E-04 lb/hr	5.75E-06 tpy
	Main Drill Rig Engine 2	2480 kW	Drilling mode	3 hr/yr	205.8 g/kWh	2,480 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	h	6.4E-04 lb/hr	3.77E-04 tpy
	Main Drill Rig Engine 2	2480 kW	Drilling mode	18 1,179 hr/yr	205.8 g/kWh	2,480 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	h	6.4E-04 lb/hr	3.77E-04 tpy
	Main Drill Rig Engine 2	2480 kW	Preload	1,179 hr/yr	217 g/kWh	1,249 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	h	3.4E-04 lb/hr	2.54E-06 tpy
	Main Drill Rig Engine 2	2480 kW	Preload Hold & Discharge	hr/yr	358 g/kWh	256 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	h	1.1E-04 lb/hr	5.16E-07 tpy
	Main Drill Rig Engine 2	2480 kW	Jackup to Final Air Gap	15 hr/yr	221 g/kWh	999 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	h	2.8E-04 lb/hr	4.15E-07 tpy
	Main Drill Rig Engine 3	2480 kW	Drilling mode	9 hr/yr	205.8 g/kWh	2,480 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	h	6.4E-04 lb/hr	3.77E-04 tpy
	Main Drill Rig Engine 3	2480 kW	Preload	1,179 3 hr/yr	358 g/kWh	256 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	h	1.1E-04 lb/hr	8.61E-07 tpy
	Main Drill Rig Engine 3	2480 kW	Preload Hold & Discharge	hr/yr	358 g/kWh	256 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	h	1.1E-04 lb/hr	5.16E-07 tpy
	Main Drill Rig Engine 3	2480 kW	Jackup to Final Air Gap	15 hr/yr	221 g/kWh	999 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	h	2.8E-04 lb/hr	4.15E-07 tpy
	Main Drill Rig Engine 4	2480 kW	Drilling mode	9 hr/yr	205.8 g/kWh	2,480 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	h	6.4E-04 lb/hr	3.77E-04 tpy
	Emergency Back-up Engine	968 kW	Drilling mode	1,179 3 hr/yr	205 g/kWh	968 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	h	2.5E-04 lb/hr	9.32E-06 tpy
	Cement Engine 1	403 kW	Drilling mode	75 hr/yr	29 gal/hr	403 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	1.11E-04 lb/hr	7.28E-06 tpy
	Cement Engine 2	403 kW	Drilling mode	131 hr/yr	29 gal/hr	403 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	1.11E-04 lb/hr	7.28E-06 tpy
	Logging Winch	187 kW	Drilling mode	131 hr/yr	13 gal/hr	187 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	a	5.09E-05 lb/hr	6.95E-06 tpy
	Heater 1	3.5 MMBtu/hr*	Drilling mode	273 hr/yr	26 gal/hr	3.5 MMBtu/hr*	9 lb/10^{12} Btu	AP-42, Table 1.3-10	f	3.15E-05 lb/hr	3.78E-05 tpy
	Heater 2	3.5 MMBtu/hr*	Drilling mode	2,400 hr/yr	26 gal/hr	3.5 MMBtu/hr*	9 lb/10^{12} Btu	AP-42, Table 1.3-10	f	3.15E-05 lb/hr	3.78E-05 tpy
	Incinerator	N A	Drilling mode	2,400 65 tons/yr	276 lbs/hr	N A	0.213 lbs/ton	AP-42, Table 2.1-2 (10/1996)	b	2.94E-02 lb/hr	6.96E-03 tpy
	Fuel Tank 1	N A	Drilling mode	2,400 hrs/yr	470,220 gal/yr**	N A	NA	NA		NA	NA
	Fuel Tank 2	N A	Drilling mode	2,400 hrs/yr	470,220 gal/yr**	N A	NA	NA		NA	NA
	Mud Degassing	20000 scf/day	Drilling mode	2,400 100 days/yr	NA	20,000 scf/day	NA	NA		NA	NA

**Max throughput *Heat input rate

Ice Breaker 1

	Main Engine 1	7500 kW	Cruising	675 hr/yr	426 gal/hr	8,046 hp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	c	1.63E-03 lb/hr	5.51E-04 tpy
	Main Engine 2	7500 kW	Cruising	675 hr/yr	426 gal/hr	8,046 hp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	c	1.63E-03 lb/hr	5.51E-04 tpy
	Main Engine 3	7500 kW	Cruising	675 hr/yr	320 gal/hr	6,035 hp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	c	1.23E-03 lb/hr	4.13E-04 tpy
	Main Engine 4	7500 kW	Cruising	675 hr/yr	320 gal/hr	6,035 hp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	c	1.23E-03 lb/hr	4.13E-04 tpy
	Harbor Generator	952.11 hp	Cruising	8 hr/yr	50 gal/hr	952 hp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	c	1.93E-04 lb/hr	7.73E-07 tpy
	Emergency Generator	402.3 hp	Cruising	8 hr/yr	21 gal/hr	402 hp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	c	8.17E-05 lb/hr	3.27E-07 tpy
	Boiler 1	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	9 lb/10^{12} Btu	AP-42, Table 1.3-10	e	3.33E-05 lb/hr	1.12E-05 tpy
	Boiler 2	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	9 lb/10^{12} Btu	AP-42, Table 1.3-10	e	3.33E-05 lb/hr	1.12E-05 tpy
	Incinerator	N A	Cruising	675 hr/yr	175 lb/hr	N A	0.213 lbs/ton	AP-42, Table 2.1-2 (10/1996)	b	1.86E-02 lb/hr	6.29E-03 tpy

*Heat input rate

Ice Breaker 2

	Main Engine 1	7500 kW	Cruising	675 hr/yr	426 gal/hr	8,046 hp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	c	1.63E-03 lb/hr	5.51E-04 tpy
	Main Engine 2	7500 kW	Cruising	675 hr/yr	426 gal/hr	8,046 hp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	c	1.63E-03 lb/hr	5.51E-04 tpy
	Main Engine 3	7500 kW	Cruising	675 hr/yr	320 gal/hr	6,035 hp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	c	1.23E-03 lb/hr	4.13E-04 tpy
	Main Engine 4	7500 kW	Cruising	675 hr/yr	320 gal/hr	6,035 hp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	c	1.23E-03 lb/hr	4.13E-04 tpy
	Harbor Generator	952.11 hp	Cruising	8 hr/yr	50 gal/hr	952 hp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	c	1.93E-04 lb/hr	7.73E-07 tpy
	Emergency Generator	402.3 hp	Cruising	8 hr/yr	21 gal/hr	402 hp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	c	8.17E-05 lb/hr	3.27E-07 tpy
	Boiler 1	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	9 lb/10^{12} Btu	AP-42, Table 1.3-10	e	3.33E-05 lb/hr	1.12E-05 tpy
	Boiler 2	3.7 MMBtu/hr*	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	9 lb/10^{12} Btu	AP-42, Table 1.3-10	e	3.33E-05 lb/hr	1.12E-05 tpy
	Incinerator	N A	Cruising	675 hr/yr	175 lb/hr	N A	0.213 lbs/ton	AP-42, Table 2.1-2 (10/1996)	b	1.86E-02 lb/hr	6.29E-03 tpy

*Heat input rate

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Lead

	Emission Unit Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential Lead Emissions	
										Hourly Emission Rate	Annual Emission Rate
Anchor Handler Tug Supply Vessel (AHTS)											
	Main Engine 1	2710 kW	Cruising	0 hr/yr	99 gal/hr	1,400 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	a	3.81E-04 lb/hr	1.52E-08 tpy
	Main Engine 2	2710 kW	Cruising	0 hr/yr	99 gal/hr	1,400 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	a	3.81E-04 lb/hr	1.52E-08 tpy
	Main Engine 1	2710 kW	Mooring Assist	9 hr/yr	71 gal/hr	1,000 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	a	2.72E-04 lb/hr	1.22E-06 tpy
	Main Engine 2	2710 kW	Mooring Assist	9 hr/yr	71 gal/hr	1,000 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	a	2.72E-04 lb/hr	1.22E-06 tpy
	Tow Winch Engine	750 kW	Mooring Assist	9 hr/yr	11 gal/hr	150 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	a	4.08E-05 lb/hr	1.84E-07 tpy
	Thruster Engine 1	750 kW	Mooring Assist	9 hr/yr	27 gal/hr	375 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	a	1.02E-04 lb/hr	4.59E-07 tpy
	Thruster Engine 2	750 kW	Mooring Assist	9 hr/yr	27 gal/hr	375 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	a	1.02E-04 lb/hr	4.59E-07 tpy
	Generator 1	500 kW	Anchored	1,196 hr/yr	18 gal/hr	250 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	a	6.80E-05 lb/hr	4.07E-05 tpy
	Generator 1	500 kW	Mooring Assist	9 hr/yr	21 gal/hr	300 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	a	8.16E-05 lb/hr	3.67E-07 tpy
	Generator 1	500 kW	Cruising	0 hr/yr	18 gal/hr	250 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	a	6.80E-05 lb/hr	2.72E-09 tpy
	Generator 2	500 kW	DP	1,196 hr/yr	11 gal/hr	150 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	a	4.08E-05 lb/hr	2.44E-05 tpy
	Emergency Generator	205.89 kW	Non-propulsion	8 hr/yr	20 gal/hr	276 hp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	c	5.60E-05 lb/hr	2.24E-07 tpy
Oil Spill Response Vessel 1 (Dedicated OSRV)											
	Main Engine 1	3070 bhp	Cruising	864 hr/yr	77.5 gal/hr	-- --	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	2.97E-04 lb/hr	1.28E-04 tpy
	Main Engine 2	3070 bhp	Cruising	864 hr/yr	77.5 gal/hr	-- --	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	2.97E-04 lb/hr	1.28E-04 tpy
	Thruster Engine 1	1100 hp	Laying Boom	36 hr/yr	11.6 gal/hr	-- --	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	4.44E-05 lb/hr	8.00E-07 tpy
	Thruster Engine 2	1100 hp	Laying Boom	36 hr/yr	10.6 gal/hr	-- --	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	4.06E-05 lb/hr	7.31E-07 tpy
	Thruster Engine 3	1100 hp	Laying Boom	36 hr/yr	7.1 gal/hr	-- --	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	2.72E-05 lb/hr	4.90E-07 tpy
	Generator 1	710 kW	Cruising/DP/Anchored	1,164 hr/yr	11.54 gal/hr	-- --	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	4.42E-05 lb/hr	2.57E-05 tpy
	Generator 1	710 kW	Laying Boom	36 hr/yr	11.54 gal/hr	-- --	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	4.42E-05 lb/hr	7.96E-07 tpy
	Generator 2	710 kW	Cruising/DP	1,164 hr/yr	11.54 gal/hr	-- --	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	4.42E-05 lb/hr	2.57E-05 tpy
	Generator 2	710 kW	Laying Boom	36 hr/yr	11.54 gal/hr	-- --	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	4.42E-05 lb/hr	7.96E-07 tpy
	Emergency Generator	279 hp	Cruising/DP	8 hr/yr	15 gal/hr	279 hp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	c	5.66E-05 lb/hr	2.27E-07 tpy
Oil Spill Response Vessel 2											
	Main Engine 1	3070 bhp	Cruising	60 hr/yr	77.5 gal/hr	-- --	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	2.97E-04 lb/hr	8.91E-06 tpy
	Main Engine 2	3070 bhp	Cruising	60 hr/yr	77.5 gal/hr	-- --	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	2.97E-04 lb/hr	8.91E-06 tpy
	Thruster Engine 1	1100 hp	Cruising	- hr/yr	- gal/hr	-- --	2.90E-05 lb/MMBtu	EPA 454/R-98-006	g	0 lb/hr	0.00E+00 tpy
	Thruster Engine 2	1100 hp	Cruising	- hr/yr	- gal/hr	-- --	2.90E-05 lb/MMBtu	EPA 454/R-98-006	g	0 lb/hr	0.00E+00 tpy
	Thruster Engine 3	1100 hp	Cruising	- hr/yr	- gal/hr	-- --	2.90E-05 lb/MMBtu	EPA 454/R-98-006	g	0 lb/hr	0.00E+00 tpy
	Generator 1	710 kW	Cruising/DP	30 hr/yr	11.54 gal/hr	-- --	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	4.42E-05 lb/hr	6.63E-07 tpy
	Generator 2	710 kW	Cruising/DP	30 hr/yr	11.54 gal/hr	-- --	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	4.42E-05 lb/hr	6.63E-07 tpy
	Emergency Generator	279 hp	Cruising/DP	8 hr/yr	15 gal/hr	279 hp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	c	5.66E-05 lb/hr	2.27E-07 tpy

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Lead

	Emission Unit Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential Lead Emissions	
										Hourly Emission Rate	Annual Emission Rate
Offshore Supply Vessels (OSV1 & OSV2)											
	Main Engine 1	3151 hp	Cruising	378 hr/yr	75 gal/hr	-- --	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	2.85E-04 lb/hr	5.39E-05 tpy
	Main Engine 1	3151 hp	Idling	133 hr/yr	67 gal/hr	-- --	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	2.57E-04 lb/hr	1.71E-05 tpy
	Main Engine 2	3151 hp	Cruising	378 hr/yr	75 gal/hr	-- --	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	2.85E-04 lb/hr	5.39E-05 tpy
	Main Engine 2	3151 hp	Idling	133 hr/yr	67 gal/hr	-- --	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	2.57E-04 lb/hr	1.71E-05 tpy
	Thruster Engine 1	950 hp	DP	756 hr/yr	45 gal/hr	950 bhp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	1.72E-04 lb/hr	6.52E-05 tpy
	Thruster Engine 2	950 hp	DP	756 hr/yr	45 gal/hr	950 bhp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	1.72E-04 lb/hr	6.52E-05 tpy
	Thruster Engine 3	950 hp	DP	756 hr/yr	45 gal/hr	950 bhp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	1.72E-04 lb/hr	6.52E-05 tpy
	Generator	400 kW	Cruising/DP/Idle	634 hr/yr	27 gal/hr	400 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	1.03E-04 lb/hr	3.28E-05 tpy
	Generator	400 kW	Cruising/DP/Idle	634 hr/yr	27 gal/hr	400 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	1.03E-04 lb/hr	3.28E-05 tpy
	Generator	400 kW	Cruising/DP/Idle	0 hr/yr	27 gal/hr	400 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	g	0.00E+00 lb/hr	0.00E+00 tpy
	Emergency Generator	99 kW	Cruising/DP/Idle	8 hr/yr	3 gal/hr	99 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	3.06E-05 lb/hr	1.23E-07 tpy
Ware Vessel (WV) w/ AHTS and OSV backup											
	Main Engine 1	2387.2 kW	Cruising	360 hr/yr	87 gal/hr	-- --	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	3.33E-04 lb/hr	6.00E-05 tpy
	Main Engine 2	2387.2 kW	Cruising	360 hr/yr	87 gal/hr	-- --	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	3.33E-04 lb/hr	6.00E-05 tpy
	Main Engine 3	2387.2 kW	DP/Idling	820 hr/yr	81 gal/hr	-- --	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	3.10E-04 lb/hr	1.27E-04 tpy
	Main Engine 4	2387.2 kW	DP/Idling	820 hr/yr	81 gal/hr	-- --	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	3.10E-04 lb/hr	1.27E-04 tpy
	Generator 1	503.54 kW	Cruising/DP/Idling	590 hr/yr	32 gal/hr	504 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	1.23E-04 lb/hr	3.62E-05 tpy
	Generator 2	503.54 kW	Cruising/DP/Idling	590 hr/yr	32 gal/hr	504 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	1.23E-04 lb/hr	3.62E-05 tpy
	Generator 3	503.54 kW	Cruising/DP/Idling	0 hr/yr	32 gal/hr	504 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	g	0 lb/hr	0.00E+00 tpy
	Emergency Generator	170 kW	Cruising/DP/Idling	8 hr/yr	12.3 gal/hr	170 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	4.90E-05 lb/hr	1.96E-07 tpy
34' boom work boats - 4											
	WB-1 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	5.78E-05 lb/hr	1.39E-06 tpy
	WB-1 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	5.78E-05 lb/hr	1.39E-06 tpy
	WB-2 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	5.78E-05 lb/hr	1.39E-06 tpy
	WB-2 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	5.78E-05 lb/hr	1.39E-06 tpy
	WB-3 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	5.78E-05 lb/hr	1.39E-06 tpy
	WB-3 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	5.78E-05 lb/hr	1.39E-06 tpy
	WB-4 Propulsion Engine 1	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	5.78E-05 lb/hr	1.39E-06 tpy
	WB-4 Propulsion Engine 2	300 hp	Cruising	48 hr/yr	15 gal/hr	300 hp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	5.78E-05 lb/hr	1.39E-06 tpy
Marine Research Vessel											
	Main Engine	850 hp	Cruising	600 hr/yr	45 gal/hr	850 hp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	c	1.73E-04 lb/hr	5.18E-05 tpy
	Generator 1	135 kW	Cruising	600 hr/yr	10 gal/hr	135 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	a	3.67E-05 lb/hr	1.10E-05 tpy
	Generator 2	90 kW	Cruising	600 hr/yr	6 gal/hr	90 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	a	2.45E-05 lb/hr	7.35E-06 tpy
	Generator 3	40 kW	Cruising	600 hr/yr	3 gal/hr	40 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	a	1.09E-05 lb/hr	3.27E-06 tpy

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Lead

Emission Unit Description	Rating	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Potential Lead Emissions Hourly Emission Rate	Potential Lead Emissions Annual Emission Rate
Spill Storage Tanker										
Main Engine 1	19460 bhp	Cruising	5 hr/yr	1031 gal/hr	19,460 bhp	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	3.95E-03 lb/hr	9.32E-06 tpy
Generator 1	600 kW	Anchored/Cruising	29 hr/yr	43 gal/hr	600 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	d	1.63E-04 lb/hr	2.37E-06 tpy
Generator 2	600 kW	Cruising	29 hr/yr	43 gal/hr	600 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	a	1.63E-04 lb/hr	2.37E-06 tpy
Generator 3	600 kW	Anchored	- hr/yr	0 gal/hr	0 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	g	0 lb/hr	0.00E+00 tpy
Emergency Generator	350 kW	Anchored	- hr/yr	0 gal/hr	0 kW	2.90E-05 lb/MMBtu	EPA 454/R-98-006	g	0 lb/hr	0.00E+00 tpy
Boiler 1	4900 kg/hr	Anchored/Cruising	53 hr/yr	4900 kg/hr	212 MMBtu/hr*	9 $lb/10^{12}$ Btu	AP-42, Table 1.3-10	f	1.90E-03 lb/hr	5.02E-05 tpy
Boiler 2	4900 kg/hr	Anchored	- hr/yr	0 kg/hr	0 MMBtu/hr*	9 $lb/10^{12}$ Btu	AP-42, Table 1.3-10	g	0 lb/hr	0.00E+00 tpy
					*Heat input rate					
All Vessels Fuel Tanks										
Fuel Tank	N A	NA	2,400 hr/yr	2,880,158 gal/yr*	N A	NA	NA		NA	NA
					*Max throughput					

1 1.341 hp/kW; 454g/lb; Break Specific Fuel Consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1).
2 Ultra Low Sulfur Diesel #1 (ULSD): Fuel Heat Content of 132,096 Btu/gal; Density of 0.8094 kg/L; so 6.74 lbs/gal diesel is assumed (Tesoro/Kenai Refinery).
3 Incinerator Fuel Heat Content (Waste) of 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17). Incinerators will burn ULSD for ignition purposes only.
4 Fuel Consumption has been calculated from Power Output where not available from manufacturer specifications.
5 An equivalent of two main drilling engines at 100% load will operate continuously for up to 4800 hours per season. All four main drilling engines will operate at 100% load for up to 48 hours per season.
6 Mud degassing rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977).
7 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 18 times per year).
8 Drill Rig Incinerator Operating Hours (65 tons/season) = (840 ft3 waste/wk) ÷ (27 ft3/yd3) x (14 wks/season) x (300 lbs/yd3 (EPA factor)) ÷ (2,000 lb/ton);
840 ft3 = 9,333 lbs/week material produced for incineration, 300 lbs/cubic foot density for waste, incinerator same size as on Discoverer (276 bs/hr).
9 OSV & Ware Vessel assume operation of up to 100 hrs/season for open water idling in the 25 mile zone, if weather delays off-loading.
10 Incinerator EF are for Modular Excess Air Combustors
12 It is assumed that brake horse power (bhp) is approximately equal to horse power (hp).
13 EPA 454/R-98-006 is "L & E Air Emissions from Sources of Lead and Lead Compounds," May 1998. Section 5.2.2, Distillate oil-fired gas turbines (more recent results).
14 Emissions (tons) = Hourly Emission Rate (lb/hr) x Allowable Operation (hr/yr) x (1 ton/2000 lb).

Note
a Hourly Emission Rate (lb/hr) = Emission Factor (lb/MMBtu) x Max Output Capacity (kW) x Fuel Consumption Rate (7,000 Btu/hp-h) x (1.3405 hp/kW)
b Hourly Emission Rate (lb/hr) = Emission Factor (lb/ton) x Max Fuel Usage (lb/hr) x (1 ton/2,000 lb)
c Hourly Emission Rate (lb/hr) = Emission Factor (lb/MMBtu) x Max Output Capacity (hp) x Fuel Consumption Rate (7,000 Btu/hp-h)
d Hourly Emission Rate (lb/hr) = Emission Factor (lb/MMBtu)*Max Fuel Usage (gal/hr)*(132096 Btu/gal)/(1,000,000)
e Hourly Emission Rate (lb/hr) = Emission Factor (lb/10^12Btu)*Max Fuel Usage (gal/hr) x Fuel Heat Content (132,096 Btu/gal)/(10^12)
f Hourly Emission Rate (lb/hr) = Emission Factor (lb/10^12Btu)*Max Output Capacity (MMBtu/hr)/(1,000,000)
g Not operating within 25 miles of the rig
h Hourly Emission Rate (lb/hr) = Emission Factor (lb/MMBtu) x Max Output Capacity (kW) x Max Fuel Usage (g/kW-h) x (1lb/454g) x Fuel Density (1lb/454g) x Fuel Heat Content (132,096Btu/gal)

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Sulfuric Acid Mist (from SCR Controls)

	Emission Unit Description	Fuel Type	Fuel Sulfur Content	Allowable Operation	Fuel Consumption	Power Output	SO2 Emission Factor	SO2 Reference	Amount SO2 converted to SO3 by SCR	SO3 Emission Factor	H2SO4 Emission Factor	H2SO4 Unit		Potential H2SO4 Emissions Hourly Emission Rate	Potential H2SO4 Emissions Annual Emission Rate
Drill Rig Equipment															
	Main Drill Rig Engine 1	ULSD	0.0015 wt. % S	1,179 hr/yr	206 g/kWh	2,480 kW	2.02E-04 lb/gal	Mass Balance	1.82E-05	2.27E-05 lb/gal	2.79E-05 lb/gal	c		4.65E-03 lb/h	2.74E-03 tpy
	Main Drill Rig Engine 1	ULSD	0.0015 wt. % S	15 hr/yr	217 g/kWh	1,249 kW	2.02E-04 lb/gal	Mass Balance	1.82E-05	2.27E-05 lb/gal	2.79E-05 lb/gal	c		2.47E-03 lb/h	1.85E-05 tpy
	Main Drill Rig Engine 1	ULSD	0.0015 wt. % S	9 hr/yr	358 g/kWh	256 kW	2.02E-04 lb/gal	Mass Balance	1.82E-05	2.27E-05 lb/gal	2.79E-05 lb/gal	c		8.35E-04 lb/h	3.76E-06 tpy
	Main Drill Rig Engine 1	ULSD	0.0015 wt. % S	3 hr/yr	221 g/kWh	999 kW	2.02E-04 lb/gal	Mass Balance	1.82E-05	2.27E-05 lb/gal	2.79E-05 lb/gal	c		2.01E-03 lb/h	3.02E-06 tpy
	Main Drill Rig Engine 1	ULSD	0.0015 wt. % S	18 hr/yr	206 g/kWh	2,480 kW	2.02E-04 lb/gal	Mass Balance	1.82E-05	2.27E-05 lb/gal	2.79E-05 lb/gal	c		4.65E-03 lb/h	4.18E-05 tpy
	Main Drill Rig Engine 2	ULSD	0.0015 wt. % S	1,179 hr/yr	206 g/kWh	2,480 kW	2.02E-04 lb/gal	Mass Balance	1.82E-05	2.27E-05 lb/gal	2.79E-05 lb/gal	c		4.65E-03 lb/h	2.74E-03 tpy
	Main Drill Rig Engine 2	ULSD	0.0015 wt. % S	15 hr/yr	217 g/kWh	1,249 kW	2.02E-04 lb/gal	Mass Balance	1.82E-05	2.27E-05 lb/gal	2.79E-05 lb/gal	c		2.47E-03 lb/h	1.85E-05 tpy
	Main Drill Rig Engine 2	ULSD	0.0015 wt. % S	9 hr/yr	358 g/kWh	256 kW	2.02E-04 lb/gal	Mass Balance	1.82E-05	2.27E-05 lb/gal	2.79E-05 lb/gal	c		8.35E-04 lb/h	3.76E-06 tpy
	Main Drill Rig Engine 2	ULSD	0.0015 wt. % S	3 hr/yr	221 g/kWh	999 kW	2.02E-04 lb/gal	Mass Balance	1.82E-05	2.27E-05 lb/gal	2.79E-05 lb/gal	c		2.01E-03 lb/h	3.02E-06 tpy
	Main Drill Rig Engine 2	ULSD	0.0015 wt. % S	18 hr/yr	206 g/kWh	2,480 kW	2.02E-04 lb/gal	Mass Balance	1.82E-05	2.27E-05 lb/gal	2.79E-05 lb/gal	c		4.65E-03 lb/h	4.18E-05 tpy
	Main Drill Rig Engine 3	ULSD	0.0015 wt. % S	1,179 hr/yr	206 g/kWh	2,480 kW	2.02E-04 lb/gal	Mass Balance	1.82E-05	2.27E-05 lb/gal	2.79E-05 lb/gal	c		4.65E-03 lb/h	2.74E-03 tpy
	Main Drill Rig Engine 3	ULSD	0.0015 wt. % S	15 hr/yr	358 g/kWh	256 kW	2.02E-04 lb/gal	Mass Balance	1.82E-05	2.27E-05 lb/gal	2.79E-05 lb/gal	c		8.35E-04 lb/h	6.26E-06 tpy
	Main Drill Rig Engine 3	ULSD	0.0015 wt. % S	9 hr/yr	358 g/kWh	256 kW	2.02E-04 lb/gal	Mass Balance	1.82E-05	2.27E-05 lb/gal	2.79E-05 lb/gal	c		8.35E-04 lb/h	3.76E-06 tpy
	Main Drill Rig Engine 3	ULSD	0.0015 wt. % S	3 hr/yr	221 g/kWh	999 kW	2.02E-04 lb/gal	Mass Balance	1.82E-05	2.27E-05 lb/gal	2.79E-05 lb/gal	c		2.01E-03 lb/h	3.02E-06 tpy
	Main Drill Rig Engine 4	ULSD	0.0015 wt. % S	1,179 hr/yr	206 g/kWh	2,480 kW	2.02E-04 lb/gal	Mass Balance	1.82E-05	2.27E-05 lb/gal	2.79E-05 lb/gal	c		4.65E-03 lb/h	2.74E-03 tpy
Ice Breaker 1															
	Main Engine 1	ULSD	0.0015 wt. % S	675 hr/yr	426 gal/hr	8,046 hp	2.02E-04 lb/gal	Mass Balance	1.82E-05	2.27E-05 lb/gal	2.79E-05 lb/gal	b		1.19E-02 lb/h	4.01E-03 tpy
	Main Engine 2	ULSD	0.0015 wt. % S	675 hr/yr	426 gal/hr	8,046 hp	2.02E-04 lb/gal	Mass Balance	1.82E-05	2.27E-05 lb/gal	2.79E-05 lb/gal	b		1.19E-02 lb/h	4.01E-03 tpy
	Main Engine 3	ULSD	0.0015 wt. % S	675 hr/yr	320 gal/hr	6,035 hp	2.02E-04 lb/gal	Mass Balance	1.82E-05	2.27E-05 lb/gal	2.79E-05 lb/gal	b		8.91E-03 lb/h	3.01E-03 tpy
	Main Engine 4	ULSD	0.0015 wt. % S	675 hr/yr	320 gal/hr	6,035 hp	2.02E-04 lb/gal	Mass Balance	1.82E-05	2.27E-05 lb/gal	2.79E-05 lb/gal	b		8.91E-03 lb/h	3.01E-03 tpy
Ice Breaker 2															
	Main Engine 1	ULSD	0.0015 wt. % S	675 hr/yr	426 gal/hr	8,046 hp	2.02E-04 lb/gal	Mass Balance	1.82E-05	2.27E-05 lb/gal	2.79E-05 lb/gal	b		1.19E-02 lb/h	4.01E-03 tpy
	Main Engine 2	ULSD	0.0015 wt. % S	675 hr/yr	426 gal/hr	8,046 hp	2.02E-04 lb/gal	Mass Balance	1.82E-05	2.27E-05 lb/gal	2.79E-05 lb/gal	b		1.19E-02 lb/h	4.01E-03 tpy
	Main Engine 3	ULSD	0.0015 wt. % S	675 hr/yr	320 gal/hr	6,035 hp	2.02E-04 lb/gal	Mass Balance	1.82E-05	2.27E-05 lb/gal	2.79E-05 lb/gal	b		8.91E-03 lb/h	3.01E-03 tpy
	Main Engine 4	ULSD	0.0015 wt. % S	675 hr/yr	320 gal/hr	6,035 hp	2.02E-04 lb/gal	Mass Balance	1.82E-05	2.27E-05 lb/gal	2.79E-05 lb/gal	b		8.91E-03 lb/h	3.01E-03 tpy

1 1.341 hp/kW; 454g/lb; Break Specific Fuel Consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1).
2 Ultra Low Sulfur Diesel #1 (ULSD): Fuel Heat Content of 132,096 Btu/gal; Density of 0.8094 kg/L; so 6.74 lbs/gal diesel is assumed (Tesoro/Kenai Refinery).
3 Incinerator Fuel Heat Content (Waste) of 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17). Incinerators will burn ULSD for ignition purposes only.
4 Fuel Consumption has been calculated from Power Output where not available from manufacturer specifications.
5 An equivalent of two main drilling engines at 100% load will operate continuously for up to 4800 hours per season. All four main drilling engines will operate at 100% load for up to 48 hours per season.
6 Emissions (tons) = Hourly Emission Rate (lb/hr) x Allowable Operation (hr/yr) x (1 ton/2000 lb).
7 9% of SO2 is converted to SO3 due to SCR Controls (Drill Rig & Ice Breaker Main Engines) per email from Matts Andersson (Wartsila) on 12/17/2009.
10 SO2 Emission Factor (lb/gal) by Mass Balance = Fuel Sulfur Content (weight %S / 100%) x Fuel Density (6.74 lb/gal) x MW of SO2 (64 lb/lb mol SO2) ÷ MW of S (32 lb/lb mol S)
11 SO3 Emission Factor (lb/gal) by Mass Balance = 9% of SO2 converted to SO3 [.09 x SO2 Emission Factor (lb/gal)] x [(SO3 MW (80) ÷ SO2 MW (64)]
12 H2SO4 Emission Factor (lb/gal) by Mass Balance = SO3 EF (lb/gal) x [H2SO4 MW (98) ÷ SO3 MW (80)]
13 SO2 MW = 64
14 SO3 MW = 80
15 H2S04 MW = 98
16 SO3 MW (80) ÷ SO2 MW (64) = 1.25, so 1lb SO2 = 1.25lb SO3
17 H2SO4 MW (98) ÷ SO3 MW (80) = 1.225, so 1lb SO3 = 1.225lb H2SO4

Note
a Hourly Emission Rate (lb/hr) = Emission Factor (lb/gal) x Max Output Capacity (kW) ÷ Fuel Heat Content (132,096 Btu/gal) x (1.3405 hp/kW) x Fuel Consumption Rate (7,000 Btu/hp-h)
b Hourly Emission Rate (lb/hr) = Emission Factor (lb/gal) x Max Output Capacity (hp) ÷ Fuel Heat Content (132,096 Btu/gal) x Fuel Consumption Rate (7,000 Btu/hp-h)
c Hourly Emission Rate (lb/hr) = Emission Factor (lb/gal) x Max Output Capacity (kW) x Max Fuel Input (g/kWh) x Fuel Density (1gal/6.74lb)x (1lb/454g)

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Carbon Dioxide

	Emission Unit Description	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Annual CO2 Emission	Emission Factor	Emission Factor Reference		Annual CO2 Emission Rate
						Method 1				Method 2			
Drill Rig Equipment													
	Main Drill Rig Engine 1	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	165 lb/MMBtu	AP-42, Table 3.4-1	o	2143.1 tpy	658 g/kWh	Vendor Equip.	h	2118.9 tpy
	Main Drill Rig Engine 1	Preload	15 hr/yr	217 g/kWh	1,249 kW	165 lb/MMBtu	AP-42, Table 3.4-1	o	14.5 tpy	658 g/kWh	Vendor Equip.	h	13.6 tpy
	Main Drill Rig Engine 1	Preload Hold & Discharge		358 g/kWh	256 kW	165 lb/MMBtu	AP-42, Table 3.4-1	o	2.9 tpy	658 g/kWh	Vendor Equip.	h	1.7 tpy
	Main Drill Rig Engine 1	Jackup to Final Air Gap		221 g/kWh	999 kW	165 lb/MMBtu	AP-42, Table 3.4-1	o	2.4 tpy	658 g/kWh	Vendor Equip.	h	2.2 tpy
	Main Drill Rig Engine 1	Prepare for Drilling	9 hr/yr 18 hr/yr	205.8 g/kWh	2,480 kW	165 lb/MMBtu	AP-42, Table 3.4-1	o	32.7 tpy	658 g/kWh	Vendor Equip.	h	32.3 tpy
	Main Drill Rig Engine 2	Drilling mode	3 hr/yr 1,179 hr/yr	205.8 g/kWh	2,480 kW	165 lb/MMBtu	AP-42, Table 3.4-1	o	2143.1 tpy	658 g/kWh	Vendor Equip.	h	2118.9 tpy
	Main Drill Rig Engine 2	Preload	15.0 hr/yr	217 g/kWh	1,249 kW	165 lb/MMBtu	AP-42, Table 3.4-1	o	14.5 tpy	658 g/kWh	Vendor Equip.	h	13.6 tpy
	Main Drill Rig Engine 2	Preload Hold & Discharge	9.0 hr/yr	358 g/kWh	256 kW	165 lb/MMBtu	AP-42, Table 3.4-1	o	2.9 tpy	658 g/kWh	Vendor Equip.	h	1.7 tpy
	Main Drill Rig Engine 2	Jackup to Final Air Gap	3.0 hr/yr	221 g/kWh	999 kW	165 lb/MMBtu	AP-42, Table 3.4-1	o	2.4 tpy	658 g/kWh	Vendor Equip.	h	2.2 tpy
	Main Drill Rig Engine 2	Prepare for Drilling	18.0 hr/yr	205.8 g/kWh	2,480 kW	165 lb/MMBtu	AP-42, Table 3.4-1	o	32.7 tpy	658 g/kWh	Vendor Equip.	h	32.3 tpy
	Main Drill Rig Engine 3	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	165 lb/MMBtu	AP-42, Table 3.4-1	o	2143.1 tpy	658 g/kWh	Vendor Equip.	h	2118.9 tpy
	Main Drill Rig Engine 3	Preload	15 hr/yr	358 g/kWh	256 kW	165 lb/MMBtu	AP-42, Table 3.4-1	o	4.9 tpy	658 g/kWh	Vendor Equip.	h	2.8 tpy
	Main Drill Rig Engine 3	Preload Hold & Discharge		358 g/kWh	256 kW	165 lb/MMBtu	AP-42, Table 3.4-1	o	2.9 tpy	658 g/kWh	Vendor Equip.	h	1.7 tpy
	Main Drill Rig Engine 3	Jackup to Final Air Gap		221 g/kWh	999 kW	165 lb/MMBtu	AP-42, Table 3.4-1	o	2.4 tpy	658 g/kWh	Vendor Equip.	h	2.2 tpy
	Main Drill Rig Engine 4	Drilling mode	9 hr/yr 1,179 hr/yr	205.8 g/kWh	2,480 kW	165 lb/MMBtu	AP-42, Table 3.4-1	o	2143.1 tpy	658 g/kWh	Vendor Equip.	h	2118.9 tpy
	Emergency Back-up Engine	Drilling mode	3 hr/yr 75 hr/yr	205 g/kWh	968 kW	165 lb/MMBtu	AP-42, Table 3.4-1	o	53.0 tpy	1358 lb/hr	Vendor Equip.	g	50.9 tpy
	Cement Engine 1	Drilling mode	131 hr/yr	29 gal/hr	403 kW	154 lb/MMBtu	AP-42, Table 3.3-1	p	38.64 tpy	631 lb/hr	Vendor Equip.	g	41.3 tpy
	Cement Engine 2	Drilling mode	131 hr/yr	29 gal/hr	403 kW	154 lb/MMBtu	AP-42, Table 3.3-1	p	38.64 tpy	631 lb/hr	Vendor Equip.	g	41.3 tpy
	Logging Winch	Drilling mode	273 hr/yr	13 gal/hr	187 kW	1.15 lb/hp-hr	AP-42, Table 3.3-1	a	39.35 tpy	306 lb/hr	Vendor Equip.	g	41.7 tpy
	Heater 1	Drilling mode	2,400 hr/yr	26 gal/hr	3.5 MMBtu/hr*	22,300 lb/1,000 gal	AP-42, Table 1.3-12	d	709.0 tpy	0.0742 tonne/MMBtu	API, Table 4-3	i	686.9 tpy
	Heater 2	Drilling mode	2,400 hr/yr	26 gal/hr	3.5 MMBtu/hr*	22,300 lb/1,000 gal	AP-42, Table 1.3-12	d	709.0 tpy	0.0742 tonne/MMBtu	API, Table 4-3	i	686.9 tpy
	Incinerator	Drilling mode	65 tons/yr	276 lbs/hr	N A	1970 lbs/ton	AP-42, Table 2.1-7	e	64.4 tpy	91 kg/MMBtu	GHG Final Rule, Table C-1	m	80.9 tpy
	Fuel Tank 1	Drilling mode	2,400 hrs/yr	470,220 gal/yr**	N A	NA	NA		NA	NA	NA		NA
	Fuel Tank 2	Drilling mode	2,400 hrs/yr	470,220 gal/yr**	N A	NA	NA		NA	NA	NA		NA
	Mud Degassing	Drilling mode	100 days/yr	NA	20,000 scf/day	NA	NA		NA	NA	NA		NA

**Max throughput *Heat input rate

Ice Breaker 1

	Main Engine 1	Cruising	675 hr/yr	426 gal/hr	8,046 hp	1.16 lb/hp-hr	AP-42, Table 3.4-1	b	3150.0 tpy	0.0742 tonne/MMBtu	API, Table 4-3	j	3108.6 tpy
	Main Engine 2	Cruising	675 hr/yr	426 gal/hr	8,046 hp	1.16 lb/hp-hr	AP-42, Table 3.4-1	b	3150.0 tpy	0.0742 tonne/MMBtu	API, Table 4-3	j	3108.6 tpy
	Main Engine 3	Cruising	675 hr/yr	320 gal/hr	6,035 hp	1.16 lb/hp-hr	AP-42, Table 3.4-1	b	2362.5 tpy	0.0742 tonne/MMBtu	API, Table 4-3	j	2331.5 tpy
	Main Engine 4	Cruising	675 hr/yr	320 gal/hr	6,035 hp	1.16 lb/hp-hr	AP-42, Table 3.4-1	b	2362.5 tpy	0.0742 tonne/MMBtu	API, Table 4-3	j	2331.5 tpy
	Harbor Generator	Cruising		50 gal/hr	952 hp	1.16 lb/hp-hr	AP-42, Table 3.4-1	b	4.4 tpy	0.0742 tonne/MMBtu	API, Table 4-3	j	4.4 tpy
	Emergency Generator	Cruising		21 gal/hr	402 hp	1.15 lb/hp-hr	AP-42, Table 3.3-1	b	1.9 tpy	0.0742 tonne/MMBtu	API, Table 4-3	j	1.8 tpy
	Boiler 1	Cruising	8 hr/yr 675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	22,300 lb/1,000 gal	AP-42, Table 1.3-12	d	210.7 tpy	0.0742 tonne/MMBtu	API, Table 4-3	i	204.1 tpy
	Boiler 2	Cruising	8 hr/yr 675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	22,300 lb/1,000 gal	AP-42, Table 1.3-12	d	210.7 tpy	0.0742 tonne/MMBtu	API, Table 4-3	i	204.1 tpy
	Incinerator	Cruising	675 hr/yr	175 lb/hr	N A	1970 lbs/ton	AP-42, Table 2.1-7	e	58.2 tpy	91 kg/MMBtu	GHG Final Rule, Table C-1	n	73.1 tpy

*Heat input rate

Ice Breaker 2

	Main Engine 1	Cruising	675 hr/yr	426 gal/hr	8,046 hp	1.16 lb/hp-hr	AP-42, Table 3.4-1	b	3150.0 tpy	0.0742 tonne/MMBtu	API, Table 4-3	j	3108.6 tpy
	Main Engine 2	Cruising	675 hr/yr	426 gal/hr	8,046 hp	1.16 lb/hp-hr	AP-42, Table 3.4-1	b	3150.0 tpy	0.0742 tonne/MMBtu	API, Table 4-3	j	3108.6 tpy
	Main Engine 3	Cruising	675 hr/yr	320 gal/hr	6,035 hp	1.16 lb/hp-hr	AP-42, Table 3.4-1	b	2362.5 tpy	0.0742 tonne/MMBtu	API, Table 4-3	j	2331.5 tpy
	Main Engine 4	Cruising	675 hr/yr	320 gal/hr	6,035 hp	1.16 lb/hp-hr	AP-42, Table 3.4-1	b	2362.5 tpy	0.0742 tonne/MMBtu	API, Table 4-3	j	2331.5 tpy
	Harbor Generator	Cruising		50 gal/hr	952 hp	1.16 lb/hp-hr	AP-42, Table 3.4-1	b	4.4 tpy	0.0742 tonne/MMBtu	API, Table 4-3	j	4.4 tpy
	Emergency Generator	Cruising		21 gal/hr	402 hp	1.15 lb/hp-hr	AP-42, Table 3.3-1	b	1.9 tpy	0.0742 tonne/MMBtu	API, Table 4-3	j	1.8 tpy
	Boiler 1	Cruising	8 hr/yr 675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	22300 lb/1,000 gal	AP-42, Table 1.3-12	d	210.7 tpy	0.0742 tonne/MMBtu	API, Table 4-3	i	204.1 tpy
	Boiler 2	Cruising	8 hr/yr 675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	22300 lb/1,000 gal	AP-42, Table 1.3-12	d	210.7 tpy	0.0742 tonne/MMBtu	API, Table 4-3	i	204.1 tpy
	Incinerator	Cruising	675 hr/yr	175 lb/hr	N A	1970 lbs/ton	AP-42, Table 2.1-7	e	58.2 tpy	91 kg/MMBtu	GHG Final Rule, Table C-1	n	73.1 tpy

*Heat input rate

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Carbon Dioxide

Emission Unit Description	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Annual CO2 Emission	Emission Factor	Emission Factor Reference		Annual CO2 Emission Rate
					Method 1				Method 2			
Anchor Handler Tug Supply Vessel (AHTS)												
Main Engine 1	Cruising	0.08 hr/yr	99 gal/hr	1,400 kW	1.16 lb/hp-hr	AP-42, Table 3.4-1	a	0.1 tpy	0.0742 tonne/MMBtu	API, Table 4-3	l	0.1 tpy
Main Engine 2	Cruising	0.08 hr/yr	99 gal/hr	1,400 kW	1.16 lb/hp-hr	AP-42, Table 3.4-1	a	0.1 tpy	0.0742 tonne/MMBtu	API, Table 4-3	l	0.1 tpy
Main Engine 1	Mooring Assist		71 gal/hr	1,000 kW	1.16 lb/hp-hr	AP-42, Table 3.4-1	a	7.0 tpy	0.0742 tonne/MMBtu	API, Table 4-3	l	6.9 tpy
Main Engine 2	Mooring Assist		71 gal/hr	1,000 kW	1.16 lb/hp-hr	AP-42, Table 3.4-1	a	7.0 tpy	0.0742 tonne/MMBtu	API, Table 4-3	l	6.9 tpy
Tow Winch Engine	Mooring Assist	9 hr/yr	11 gal/hr	150 kW	1.15 lb/hp-hr	AP-42, Table 3.4-1	a	1.0 tpy	0.0742 tonne/MMBtu	API, Table 4-3	l	1.0 tpy
Thruster Engine 1	Mooring Assist	9 hr/yr	27 gal/hr	375 kW	1.15 lb/hp-hr	AP-42, Table 3.4-1	a	2.6 tpy	0.0742 tonne/MMBtu	API, Table 4-3	l	2.6 tpy
Thruster Engine 2	Mooring Assist	9 hr/yr	27 gal/hr	375 kW	1.15 lb/hp-hr	AP-42, Table 3.4-1	a	2.6 tpy	0.0742 tonne/MMBtu	API, Table 4-3	l	2.6 tpy
Generator 1	Anchored	1,196 hr/yr	18 gal/hr	250 kW	1.15 lb/hp-hr	AP-42, Table 3.4-1	a	230.5 tpy	0.0742 tonne/MMBtu	API, Table 4-3	l	229.4 tpy
Generator 1	Mooring Assist	9 hr/yr	21 gal/hr	300 kW	1.15 lb/hp-hr	AP-42, Table 3.4-1	a	2.1 tpy	0.0742 tonne/MMBtu	API, Table 4-3	l	2.1 tpy
Generator 1	Cruising	0.08 hr/yr	18 gal/hr	250 kW	1.15 lb/hp-hr	AP-42, Table 3.4-1	a	0.0 tpy	0.0742 tonne/MMBtu	API, Table 4-3	l	0.0 tpy
Generator 2	DP	1196.0 hr/yr	11 gal/hr	150 kW	1.15 lb/hp-hr	AP-42, Table 3.4-1	a	138.3 tpy	0.0742 tonne/MMBtu	API, Table 4-3	l	137.6 tpy
Emergency Generator	Non-propulsion	8 hr/yr	20 gal/hr	276 hp	1.15 lb/hp-hr	AP-42, Table 3.3-1	b	1.3 tpy	0.0742 tonne/MMBtu	API, Table 4-3	j	1.3 tpy
Oil Spill Response Vessel 1 (Dedicated OSRV)												
Main Engine 1	Cruising	864 hr/yr	77.5 gal/hr	-- --	165 lb/MMBtu	AP-42, Table 3.4-1	p	729.7 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	723.3 tpy
Main Engine 2	Cruising	864 hr/yr	77.5 gal/hr	-- --	165 lb/MMBtu	AP-42, Table 3.4-1	p	729.7 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	723.3 tpy
Thruster Engine 1	Laying Boom	36 hr/yr	11.6 gal/hr	-- --	165 lb/MMBtu	AP-42, Table 3.4-1	p	4.6 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	4.5 tpy
Thruster Engine 2	Laying Boom	36 hr/yr	10.6 gal/hr	-- --	165 lb/MMBtu	AP-42, Table 3.4-1	p	4.2 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	4.1 tpy
Thruster Engine 3	Laying Boom	36 hr/yr	7.1 gal/hr	-- --	165 lb/MMBtu	AP-42, Table 3.4-1	p	2.8 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	2.8 tpy
Generator 1	Cruising/DP/Anchored	1,164 hr/yr	11.54 gal/hr	-- --	165 lb/MMBtu	AP-42, Table 3.4-1	p	146.4 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	145.1 tpy
Generator 1	Laying Boom	36 hr/yr	11.54 gal/hr	-- --	165 lb/MMBtu	AP-42, Table 3.4-1	p	4.5 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	4.5 tpy
Generator 2	Cruising/DP	1,164 hr/yr	11.54 gal/hr	-- --	165 lb/MMBtu	AP-42, Table 3.4-1	p	146.4 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	145.1 tpy
Generator 2	Laying Boom	36 hr/yr	11.54 gal/hr	-- --	165 lb/MMBtu	AP-42, Table 3.4-1	p	4.5 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	4.5 tpy
Emergency Generator	Cruising/DP	8 hr/yr	15 gal/hr	279 hp	1.15 lb/hp-hr	AP-42, Table 3.3-1	b	1.3 tpy	0.0742 tonne/MMBtu	API, Table 4-3	j	1.3 tpy
Oil Spill Response Vessel 2												
Main Engine 1	Cruising	60 hr/yr	77.5 gal/hr	-- --	165 lb/MMBtu	AP-42, Table 3.4-1	p	50.7 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	50.2 tpy
Main Engine 2	Cruising	60 hr/yr	77.5 gal/hr	-- --	165 lb/MMBtu	AP-42, Table 3.4-1	p	50.7 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	50.2 tpy
Thruster Engine 1	Cruising	- hr/yr	- gal/hr	-- --	165 lb/MMBtu	AP-42, Table 3.4-1	p	0.0 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	0.0 tpy
Thruster Engine 2	Cruising	- hr/yr	- gal/hr	-- --	165 lb/MMBtu	AP-42, Table 3.4-1	p	0.0 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	0.0 tpy
Thruster Engine 3	Cruising	- hr/yr	- gal/hr	-- --	165 lb/MMBtu	AP-42, Table 3.4-1	p	0.0 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	0.0 tpy
Generator 1	Cruising/DP	30 hr/yr	11.54 gal/hr	-- --	165 lb/MMBtu	AP-42, Table 3.4-1	p	3.8 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	3.7 tpy
Generator 2	Cruising/DP	30 hr/yr	11.54 gal/hr	-- --	165 lb/MMBtu	AP-42, Table 3.4-1	p	3.8 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	3.7 tpy
Emergency Generator	Cruising/DP	8 hr/yr	15 gal/hr	279 hp	1.15 lb/hp-hr	AP-42, Table 3.3-1	b	1.3 tpy	0.0742 tonne/MMBtu	API, Table 4-3	j	1.3 tpy
Offshore Supply Vessels (OSV1 & OSV2)												
Main Engine 1	Cruising	378 hr/yr	75 gal/hr	-- --	165 lb/MMBtu	AP-42, Table 3.4-1	p	306.9 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	304.2 tpy
Main Engine 1	Idling	133 hr/yr	67 gal/hr	-- --	165 lb/MMBtu	AP-42, Table 3.4-1	p	97.1 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	96.3 tpy
Main Engine 2	Cruising	378 hr/yr	75 gal/hr	-- --	165 lb/MMBtu	AP-42, Table 3.4-1	p	306.9 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	304.2 tpy
Main Engine 2	Idling	133 hr/yr	67 gal/hr	-- --	165 lb/MMBtu	AP-42, Table 3.4-1	p	97.1 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	96.3 tpy
Thruster Engine 1	DP	756 hr/yr	45 gal/hr	950 bhp	165 lb/MMBtu	AP-42, Table 3.4-1	p	370.7 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	367.5 tpy
Thruster Engine 2	DP	756 hr/yr	45 gal/hr	950 bhp	165 lb/MMBtu	AP-42, Table 3.4-1	p	370.7 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	367.5 tpy
Thruster Engine 3	DP	756 hr/yr	45 gal/hr	950 bhp	165 lb/MMBtu	AP-42, Table 3.4-1	p	370.7 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	367.5 tpy
Generator	Cruising/DP/Idle	634 hr/yr	27 gal/hr	400 kW	165 lb/MMBtu	AP-42, Table 3.3-1	p	186.4 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	184.8 tpy
Generator	Cruising/DP/Idle	634 hr/yr	27 gal/hr	400 kW	165 lb/MMBtu	AP-42, Table 3.3-1	p	186.4 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	184.8 tpy
Generator	Cruising/DP/Idle	0 hr/yr	27 gal/hr	400 kW	165 lb/MMBtu	AP-42, Table 3.3-1	p	0.0 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	0.0 tpy
Emergency Generator	Cruising/DP/Idle	8 hr/yr	3 gal/hr	99 kW	165 lb/MMBtu	AP-42, Table 3.3-1	p	0.7 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	0.7 tpy
Ware Vessel (WV) w/ AHTS and OSV backup												
Main Engine 1	Cruising	360 hr/yr	87 gal/hr	-- --	165 lb/MMBtu	AP-42, Table 3.4-1	p	341.3 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	338.3 tpy
Main Engine 2	Cruising	360 hr/yr	87 gal/hr	-- --	165 lb/MMBtu	AP-42, Table 3.4-1	p	341.3 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	338.3 tpy
Main Engine 3	DP/Idling	820 hr/yr	81 gal/hr	-- --	165 lb/MMBtu	AP-42, Table 3.4-1	p	723.8 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	717.4 tpy
Main Engine 4	DP/Idling	820 hr/yr	81 gal/hr	-- --	165 lb/MMBtu	AP-42, Table 3.4-1	p	723.8 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	717.4 tpy
Generator 1	Cruising/DP/Idling	590 hr/yr	32 gal/hr	504 kW	165 lb/MMBtu	AP-42, Table 3.4-1	p	205.8 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	203.9 tpy
Generator 2	Cruising/DP/Idling	590 hr/yr	32 gal/hr	504 kW	165 lb/MMBtu	AP-42, Table 3.4-1	p	205.8 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	203.9 tpy
Generator 3	Cruising/DP/Idling	0 hr/yr	32 gal/hr	504 kW	165 lb/MMBtu	AP-42, Table 3.4-1	p	0.0 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	0.0 tpy
Emergency Generator	Cruising/DP/Idling	8 hr/yr	12.5 gal/hr	170 kW	154 lb/MMBtu	AP-42, Table 3.3-1	p	1.0 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	1.1 tpy

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Carbon Dioxide

	Emission Unit Description	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Emission Factor Reference		Annual CO2 Emission	Emission Factor	Emission Factor Reference		Annual CO2 Emission Rate
						Method 1				Method 2			
34' boom work boats - 4													
	WB-1 Propulsion Engine 1	Cruising	48 hr/yr	15 gal/hr	300 hp	154 lb/MMBtu	AP-42, Table 3.3-1	p	7.4 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	7.8 tpy
	WB-1 Propulsion Engine 2	Cruising	48 hr/yr	15 gal/hr	300 hp	154 lb/MMBtu	AP-42, Table 3.3-1	p	7.4 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	7.8 tpy
	WB-2 Propulsion Engine 1	Cruising	48 hr/yr	15 gal/hr	300 hp	154 lb/MMBtu	AP-42, Table 3.3-2	p	7.4 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	7.8 tpy
	WB-2 Propulsion Engine 2	Cruising	48 hr/yr	15 gal/hr	300 hp	154 lb/MMBtu	AP-42, Table 3.3-3	p	7.4 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	7.8 tpy
	WB-3 Propulsion Engine 1	Cruising	48 hr/yr	15 gal/hr	300 hp	154 lb/MMBtu	AP-42, Table 3.3-4	p	7.4 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	7.8 tpy
	WB-3 Propulsion Engine 2	Cruising	48 hr/yr	15 gal/hr	300 hp	154 lb/MMBtu	AP-42, Table 3.3-1	p	7.4 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	7.8 tpy
	WB-4 Propulsion Engine 1	Cruising	48 hr/yr	15 gal/hr	300 hp	154 lb/MMBtu	AP-42, Table 3.3-1	p	7.4 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	7.8 tpy
	WB-4 Propulsion Engine 2	Cruising	48 hr/yr	15 gal/hr	300 hp	154 lb/MMBtu	AP-42, Table 3.3-1	p	7.4 tpy	0.0742 tonne/MMBtu	API, Table 4-3	k	7.8 tpy
Marine Research Vessel													
	Main Engine	Cruising	600 hr/yr	45 gal/hr	850 hp	1.16 lb/hp-hr	AP-42, Table 3.4-1	b	295.8 tpy	0.0742 tonne/MMBtu	API, Table 4-3	j	291.9 tpy
	Generator 1	Cruising	600 hr/yr	10 gal/hr	135 kW	1.15 lb/hp-hr	AP-42, Table 3.3-1	a	62.4 tpy	0.0742 tonne/MMBtu	API, Table 4-3	l	62.1 tpy
	Generator 2	Cruising	600 hr/yr	6 gal/hr	90 kW	1.15 lb/hp-hr	AP-42, Table 3.3-1	a	41.6 tpy	0.0742 tonne/MMBtu	API, Table 4-3	l	41.4 tpy
	Generator 3	Cruising	600 hr/yr	3 gal/hr	40 kW	1.15 lb/hp-hr	AP-42, Table 3.3-1	a	18.5 tpy	0.0742 tonne/MMBtu	API, Table 4-3	l	18.4 tpy
Spill Storage Tanker													
	Main Engine 1	Cruising	5 hr/yr	1031 gal/hr	19,460 bhp	1.16 lb/hp-hr	AP-42, Table 3.4-1	a	53.3 tpy	0.0742 tonne/MMBtu	API, Table 4-3	l	70.5 tpy
	Generator 1	Anchored/Cruising	29 hr/yr	43 gal/hr	600 kW	1.16 lb/hp-hr	AP-42, Table 3.4-1	a	13.5 tpy	0.0742 tonne/MMBtu	API, Table 4-3	l	13.4 tpy
	Generator 2	Cruising	29 hr/yr	43 gal/hr	600 kW	1.16 lb/hp-hr	AP-42, Table 3.4-1	a	13.5 tpy	0.0742 tonne/MMBtu	API, Table 4-3	l	13.4 tpy
	Generator 3	Anchored	- hr/yr	0 gal/hr	- kW	1.16 lb/hp-hr	AP-42, Table 3.4-1	a	0.0 tpy	0.0742 tonne/MMBtu	API, Table 4-3	l	0.0 tpy
	Emergency Generator	Anchored	- hr/yr	0 gal/hr	- kW	1.15 lb/hp-hr	AP-42, Table 3.3-1	a	0.0 tpy	0.0742 tonne/MMBtu	API, Table 4-3	l	0.0 tpy
	Boiler 1	Anchored/Cruising	53 hr/yr	4900 kg/hr	212 MMBtu/hr*	22300 lb/1,000 gal	AP-42, Table 1.3-12	d	941.4 tpy	0.0742 tonne/MMBtu	API, Table 4-3	i	912.0 tpy
	Boiler 2	Anchored	- hr/yr	0 kg/hr	- MMBtu/hr*	22300 lb/1,000 gal	AP-42, Table 1.3-12	d	0.0 tpy	0.0742 tonne/MMBtu	API, Table 4-3	i	0.0 tpy

*Heat input rate

All Vessels Fuel Tanks

	Fuel Tank	NA	2,400 hr/yr	2,880,158 gal/yr*	N A	NA	NA		NA	NA	NA		NA

*Max throughput

1 1.3405 hp/kW; 454g/lb; Break Specific Fuel Consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1)
2 Ultra Low Sulfur Diesel #1 (ULSD): Fuel Heat Content of 132,096 Btu/gal; Density of 0.8094 kg/L; so 6.74 lbs/gal diesel is assumed (Tesoro/Kenai Refinery).
3 Incinerator Fuel Heat Content (Waste) of 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17). Incinerators will burn ULSD for ignition purposes only.
5 Max Fuel Usage has been calculated from Max Output Capacity where not available from manufacturer specifications.
6 An equivalent of two main drilling engines at 100% load will operate continuously for up to 4800 hours per season. All four main drilling engines will operate at 100% load for up to 48 hours per season.
7 Mud degassing rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977)
8 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 6 times per year).
9 Drill Rig Incinerator Operating Hours (65 tons/season) = (840 ft3 waste/wk) ÷ (27 ft3/yd3) x (14 wks/season) x (300 lbs/yd3 (EPA factor)) ÷ (2,000 lb/ton);
840 ft3 = 9,333 lbs/week material produced for incineration, 300 lbs/cubic foot density for waste, incinerator same size as on Discoverer (276 bs/hr)
10 OSV & Ware Vessel assume operation of up to 100 hrs/season for open water idling in the 25 mile zone, if weather delays off-loading.
11 Fifth work boat will be used to lay boom (during re-fueling) during spill exercises only if the OSRV is not used.
12 Incinerator AP-42 Table 2.1-12 emission factors are for Modular Excess Air Combustors.
13 It is assumed that brake horse power (bhp) ≈ horse power (hp).
14 API is American Petroleum Institute Compendium on Green House Gas Emission
15 Drill Rig Cement Engines Vendor Equipment emission factor is from CAT Industrial Engine Performance Data [PQ0089] sent in an email from Dave Newsad entitled "FWD: ConocoPhillips Project Caterpillar Engines" dated 1/11/2010.
16 Drill Rig Emergency Back-up Engines and Logging Winch Engine Vendor Equipment emission factor is from an email from Dave Newsad entitled "FWD: Follow up help- RE: Caterpillar engine certification help" dated 1/08/2010.
17 Method 1: Emission Factors were derived from the following sources with preference given respectively: AP-42, API Compendimum, EPA Reporting Rule Factors.
18 Method 2: Emission Factors were derived from the following sources with preference given respectively: Vendor Equipment Factors, API Compendimum, EPA Reporting Rule Factors.

Note
a Emissions (tons) = Emission Factor (lb/hp-h) x Max Output Capacity (kW) x (1.3405 hp/1 kW) x Allowable Operation (hr/yr) x (1 ton/2,000 lb)
b Emissions (tons) = Emission Factor (lb/hp-h) x Max Output Capacity (hp) x Allowable Operation (hr/yr) x (1 ton/2,000 lb)
c Emissions (tons) = Emission Factor (lb/MMBtu) x Max Output Capacity (kW) x Fuel Consumption Rate(7,000 Btu/hp-hr) x (1.3405 hp/kW) x Allowable Operation (hr/yr) x (1 ton/2,000 lb)
d Emissions (tons) = Emission Factor (lb/1,000 gal) x Heat Input Rate (MMBtu/hr) x Allowable Operation (hr/yr) x (1 ton/2,000 lb) x Fuel Heat Content (132,096 Btu/gal)
e Emissions (tons) = Emission Factor (lb/ton) x Allowable Operation (ton/yr) x (1 ton/2,000 lb)
f Emissions (tons) = Emission Factor (lb/hp-hr) x Max Fuel Use (gal/hr) ÷ Fuel Consumption Rate (7,000 Btu/hp-hr) x Fuel Heat Content (132,096 Btu/gal) x Allowable Operation (hr/yr) x (1 ton/2,000 lb)
g Emissions (tons) = Emission Factor (lb/hr) x Allowable Operation (hr/yr) x (1 ton/2,000 lb)
h Emissions (tons) = Emission Factor (g/kWh) x Max Output Capacity (kW) x (1 lb/454 g) x Allowable Operation (hr/yr) x (1 ton/2,000 lb)
i Emissions (tons) = Emission Factor (tonne/MMBtu) x Heat Input Rate (MMBtu/hr) x (1 ton/1.102tonne) x Allowable Operation (hr/yr)
j Emissions (tons) = Emission Factor (tonne/MMBtu) x (1.102ton/1tonne) x Max Output Capacity (hp) x Fuel Consumption Rate (7,000 Btu/hp-h) x Allowable Operation (hr/yr)
k Emissions (tons) = Emission Factor (tonne/MMBtu) x (1.102ton/1tonne) x Max Fuel Use (gal/hr) x Fuel Heat Content (132,096 Btu/gal) x Allowable Operation (hr/yr)
l Emissions (tons) = Emission Factor (tonne/MMBtu) x (1.102 ton/tonne) x Max Output Capacity (kW) x (1.3405 hp/kW) x Fuel Consumption Rate (7,000 Btu/hp-h) x Allowable Operation (hr/yr)
m Emissions (tons) = Emission Factor (kg/MMBtu) x (2.2 lb/kg) x Allowable Operation (ton/yr) x Municipal Waste High Heat Content (4,975 Btu/lb)
n Emissions (tons) = Emission Factor (kg/MMBtu) x (2.2 lb/kg) x Allowable Operation (hr/yr) x Municipal Waste High Heat Rate (4,975 Btu/lb) x Max Fuel Use (lb/hr) x (1 ton/2,000 lb)
o Hourly Emission Rate (lb/hr) = Emission Factor (lb/MMBtu) x Max Output Capacity (kW) x Max Fuel Usage (g/kW-h) x Allowable Operation (hr/yr) x (1lb/454g) x Fuel Density (1lb/6.74) x Fuel Heat Content (132,096Btu/gal) x (1ton/2000lb)
p Hourly Emission Rate (lb/hr) = Emission Factor (lb/MMBtu) x Max Output Capacity (kW) x Max Fuel Usage (g/kW-h) x Allowable Operation (hr/yr) x (1lb/454g) x Fuel Density (1lb/6.74) x Fuel Heat Content (132,096Btu/gal) x (1ton/2000lb)
q Hourly Emission Rate (lb/hr) = Emission Factor (lb/MMBtu) x Max Output Capacity (kW) x Max Fuel Usage (g/kW-h) x Allowable Operation (hr/yr) x (1lb/454g) x Fuel Density (1lb/6.74) x Fuel Heat Content (132,096Btu/gal) x (1.02ton/1tonne)

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Methane

Emission Unit Description	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	CH4 Emission Factor	Emission Factor Reference		Annual CH4 Emission Rate	CO2 Equivalent (CO2e)	CH4 Emission Factor	Emission Factor Reference		Annual CH4 Emission Rate	CO2 Equivalent (CO2e)
					Method 1					Method 2				
Drill Rig Equipment														
Main Drill Rig Engine 1	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	0.0081 lb/MMBtu	AP-42, Table 3.4-1	h	1.05E-01 tpy	2.21 tpy	0.0081 lb/MMBtu	API Table 4-9	h	1.11E-01 tpy	2.33 tpy
Main Drill Rig Engine 1	Preload	hr/yr	217 g/kWh	1,249 kW	0.0081 lb/MMBtu	AP-42, Table 3.4-1	h	7.11E-04 tpy	0.01 tpy	0.0081 lb/MMBtu	API Table 4-9	h	7.12E-04 tpy	0.01 tpy
Main Drill Rig Engine 1	Preload Hold & Discharge	15 hr/yr	358 g/kWh	256 kW	0.0081 lb/MMBtu	AP-42, Table 3.4-1	h	1.44E-04 tpy	0.00 tpy	0.0081 lb/MMBtu	API Table 4-9	h	8.76E-05 tpy	0.00 tpy
Main Drill Rig Engine 1	Jackup to Final Air Gap	hr/yr	221 g/kWh	999 kW	0.0081 lb/MMBtu	AP-42, Table 3.4-1	h	1.16E-04 tpy	0.00 tpy	0.0081 lb/MMBtu	API Table 4-9	h	1.14E-04 tpy	0.00 tpy
Main Drill Rig Engine 1	Prepare for Drilling	9 hr/yr	205.8 g/kWh	2,480 kW	0.0081 lb/MMBtu	AP-42, Table 3.4-1	h	1.61E-03 tpy	0.03 tpy	0.0081 lb/MMBtu	API Table 4-9	h	1.70E-03 tpy	0.04 tpy
Main Drill Rig Engine 2	Drilling mode	3 hr/yr	205.8 g/kWh	2,480 kW	0.0081 lb/MMBtu	AP-42, Table 3.4-1	h	1.05E-01 tpy	2.21 tpy	0.0081 lb/MMBtu	API Table 4-9	h	1.11E-01 tpy	2.33 tpy
Main Drill Rig Engine 2	Preload	1,179 hr/yr	217 g/kWh	1,249 kW	0.0081 lb/MMBtu	AP-42, Table 3.4-1	h	7.11E-04 tpy	0.01 tpy	0.0081 lb/MMBtu	API Table 4-9	h	7.12E-04 tpy	0.01 tpy
Main Drill Rig Engine 2	Preload Hold & Discharge	hr/yr	358 g/kWh	256 kW	0.0081 lb/MMBtu	AP-42, Table 3.4-1	h	1.44E-04 tpy	0.00 tpy	0.0081 lb/MMBtu	API Table 4-9	h	8.76E-05 tpy	0.00 tpy
Main Drill Rig Engine 2	Jackup to Final Air Gap	15 hr/yr	221 g/kWh	999 kW	0.0081 lb/MMBtu	AP-42, Table 3.4-1	h	1.16E-04 tpy	0.00 tpy	0.0081 lb/MMBtu	API Table 4-9	h	1.14E-04 tpy	0.00 tpy
Main Drill Rig Engine 2	Prepare for Drilling	9 hr/yr	205.8 g/kWh	2,480 kW	0.0081 lb/MMBtu	AP-42, Table 3.4-1	h	1.61E-03 tpy	0.03 tpy	0.0081 lb/MMBtu	API Table 4-9	h	1.70E-03 tpy	0.04 tpy
Main Drill Rig Engine 3	Drilling mode	3 hr/yr	205.8 g/kWh	2,480 kW	0.0081 lb/MMBtu	AP-42, Table 3.4-1	h	1.05E-01 tpy	2.21 tpy	0.0081 lb/MMBtu	API Table 4-9	h	1.11E-01 tpy	2.33 tpy
Main Drill Rig Engine 3	Preload	1,179 hr/yr	358 g/kWh	256 kW	0.0081 lb/MMBtu	AP-42, Table 3.4-1	h	2.40E-04 tpy	0.01 tpy	0.0081 lb/MMBtu	API Table 4-9	h	1.46E-04 tpy	0.00 tpy
Main Drill Rig Engine 3	Preload Hold & Discharge	hr/yr	358 g/kWh	256 kW	0.0081 lb/MMBtu	AP-42, Table 3.4-1	h	1.44E-04 tpy	0.00 tpy	0.0081 lb/MMBtu	API Table 4-9	h	8.76E-05 tpy	0.00 tpy
Main Drill Rig Engine 3	Jackup to Final Air Gap	15 hr/yr	221 g/kWh	999 kW	0.0081 lb/MMBtu	AP-42, Table 3.4-1	h	1.16E-04 tpy	0.00 tpy	0.0081 lb/MMBtu	API Table 4-9	h	1.14E-04 tpy	0.00 tpy
Main Drill Rig Engine 4	Drilling mode	9 hr/yr	205.8 g/kWh	2,480 kW	0.0081 lb/MMBtu	AP-42, Table 3.4-2	h	1.05E-01 tpy	2.21 tpy	0.0081 lb/MMBtu	API Table 4-9	h	1.11E-01 tpy	2.33 tpy
Emergency Back-up Engine	Drilling mode	1,179 hr/yr	205 g/kWh	968 kW	0.0081 lb/MMBtu	AP-42, Table 3.4-3	h	2.60E-03 tpy	0.05 tpy	0.0081 lb/MMBtu	API Table 4-9	h	2.76E-03 tpy	0.06 tpy
Cement Engine 1	Drilling mode	3 hr/yr	29 gal/hr	403 kW	0.032 lb/MMBtu	AP-42, Table 3.3-1	a	0.01 tpy	0.17 tpy	0.032 lb/MMBtu	API Table 4-9	a	8.03E-03 tpy	0.17 tpy
Cement Engine 2	Drilling mode	75 hr/yr	29 gal/hr	403 kW	0.032 lb/MMBtu	AP-42, Table 3.3-1	a	0.01 tpy	0.17 tpy	0.032 lb/MMBtu	API Table 4-9	a	8.03E-03 tpy	0.17 tpy
Logging Winch	Drilling mode	131 hr/yr	13 gal/hr	187 kW	2.22E-04 lb/hp-hr	AP-42, Table 3.3-1	i	7.61E-03 tpy	0.16 tpy	0.032 lb/MMBtu	API Table 4-9	g	7.66E-03 tpy	0.16 tpy
Heater 1	Drilling mode	131 hr/yr	26 gal/hr	3.5 MMBtu/hr*	0.052 lb/1000 gal	AP-42, Table 1.3-3	c	1.65E-03 tpy	0.03 tpy	0.052 lb/1000 gal	API Table 4-7	c	1.65E-03 tpy	0.03 tpy
Heater 2	Drilling mode	273 hr/yr	26 gal/hr	3.5 MMBtu/hr*	0.052 lb/1000 gal	AP-42, Table 1.3-3	c	1.65E-03 tpy	0.03 tpy	0.052 lb/1000 gal	API Table 4-7	c	1.65E-03 tpy	0.03 tpy
Incinerator	Drilling mode	2,400 tons/yr	276 lbs/hr	N A	0.032 kg/MMBtu	EPA Reporting Rule	e	2.85E-02 tpy	0.60 tpy	0.032 kg/MMBtu	EPA Reporting Rul	e	2.85E-02 tpy	0.60 tpy
Fuel Tank 1	Drilling mode	2,400 hrs/yr	470,220 gal/yr**	N A	NA	NA		NA	N A	NA	NA		NA	NA
Fuel Tank 2	Drilling mode	2,400 hrs/yr	470,220 gal/yr**	N A	NA	NA		NA	N A	NA	NA		NA	NA
Mud Degassing	Drilling mode	2,400 days/yr	NA	20,000 scf/day	0.2605 tonnes/day	API Table 5-17	d	23.64 tpy	496.4 tpy	0.2605 tonnes/day	API Table 5-17	d	23.64 tpy	496.4 tpy
		100												

**Max throughput *Heat input rate

Ice Breaker 1

Main Engine 1	Cruising	hr/yr	426 gal/hr	8,046 hp	6.35E-05 lb/hp-hr	AP-42, Table 3.4-1	j	1.72E-01 tpy	3.62 tpy	0.0081 lb/MMBtu	API Table 4-9	b	1.54E-01 tpy	3.23 tpy
Main Engine 2	Cruising	675 hr/yr	426 gal/hr	8,046 hp	6.35E-05 lb/hp-hr	AP-42, Table 3.4-1	j	1.72E-01 tpy	3.62 tpy	0.0081 lb/MMBtu	API Table 4-9	b	1.54E-01 tpy	3.23 tpy
Main Engine 3	Cruising	675 hr/yr	320 gal/hr	6,035 hp	6.35E-05 lb/hp-hr	AP-42, Table 3.4-1	j	1.29E-01 tpy	2.71 tpy	0.0081 lb/MMBtu	API Table 4-9	b	1.15E-01 tpy	2.43 tpy
Main Engine 4	Cruising	675 hr/yr	320 gal/hr	6,035 hp	6.35E-05 lb/hp-hr	AP-42, Table 3.4-1	j	1.29E-01 tpy	2.71 tpy	0.0081 lb/MMBtu	API Table 4-9	b	1.15E-01 tpy	2.43 tpy
Harbor Generator	Cruising	675 hr/yr	50 gal/hr	952 hp	6.35E-05 lb/hp-hr	AP-42, Table 3.4-1	j	2.42E-04 tpy	0.01 tpy	0.0081 lb/MMBtu	API Table 4-9	b	2.16E-04 tpy	0.00 tpy
Emergency Generator	Cruising	675 hr/yr	21 gal/hr	402 hp	2.22E-04 lb/hp-hr	AP-42, Table 3.3-1	j	3.58E-04 tpy	0.01 tpy	0.032 lb/MMBtu	API Table 4-9	b	3.60E-04 tpy	0.01 tpy
Boiler 1	Cruising	8 hr/yr	28 gal/hr	3.7 MMBtu/hr*	0.052 lb/1000 gal	AP-42, Table 1.3-3	c	4.91E-04 tpy	0.01 tpy	0.052 lb/1000 gal	API Table 4-7	c	4.91E-04 tpy	0.01 tpy
Boiler 2	Cruising	8 hr/yr	28 gal/hr	3.7 MMBtu/hr*	0.052 lb/1000 gal	AP-42, Table 1.3-3	c	4.91E-04 tpy	0.01 tpy	0.052 lb/1000 gal	API Table 4-7	c	4.91E-04 tpy	0.01 tpy
Incinerator	Cruising	675 hr/yr	175 lb/hr	N A	0.032 kg/MMBtu	EPA Reporting Rule	f	2.58E-02 tpy	0.54 tpy	0.032 kg/MMBtu	EPA Reporting Rul	f	2.58E-02 tpy	0.54 tpy
		675												

*Heat input rate

Ice Breaker 2

Main Engine 1	Cruising	hr/yr	426 gal/hr	8,046 hp	6.35E-05 lb/hp-hr	AP-42, Table 3.4-1	j	1.72E-01 tpy	3.62 tpy	0.0081 lb/MMBtu	API Table 4-9	b	1.54E-01 tpy	3.23 tpy
Main Engine 2	Cruising	675 hr/yr	426 gal/hr	8,046 hp	6.35E-05 lb/hp-hr	AP-42, Table 3.4-1	j	1.72E-01 tpy	3.62 tpy	0.0081 lb/MMBtu	API Table 4-9	b	1.54E-01 tpy	3.23 tpy
Main Engine 3	Cruising	675 hr/yr	320 gal/hr	6,035 hp	6.35E-05 lb/hp-hr	AP-42, Table 3.4-1	j	1.29E-01 tpy	2.71 tpy	0.0081 lb/MMBtu	API Table 4-9	b	1.15E-01 tpy	2.43 tpy
Main Engine 4	Cruising	675 hr/yr	320 gal/hr	6,035 hp	6.35E-05 lb/hp-hr	AP-42, Table 3.4-1	j	1.29E-01 tpy	2.71 tpy	0.0081 lb/MMBtu	API Table 4-9	b	1.15E-01 tpy	2.43 tpy
Harbor Generator	Cruising	675 hr/yr	50 gal/hr	952 hp	6.35E-05 lb/hp-hr	AP-42, Table 3.4-1	j	2.42E-04 tpy	0.01 tpy	0.0081 lb/MMBtu	API Table 4-9	b	2.16E-04 tpy	0.00 tpy
Emergency Generator	Cruising	675 hr/yr	21 gal/hr	402 hp	2.22E-04 lb/hp-hr	AP-42, Table 3.3-1	j	3.58E-04 tpy	0.01 tpy	0.032 lb/MMBtu	API Table 4-9	b	3.60E-04 tpy	0.01 tpy
Boiler 1	Cruising	8 hr/yr	28 gal/hr	3.7 MMBtu/hr*	0.052 lb/1000 gal	AP-42, Table 1.3-3	c	4.91E-04 tpy	0.01 tpy	0.052 lb/1000 gal	API Table 4-7	c	4.91E-04 tpy	0.01 tpy
Boiler 2	Cruising	8 hr/yr	28 gal/hr	3.7 MMBtu/hr*	0.052 lb/1000 gal	AP-42, Table 1.3-3	c	4.91E-04 tpy	0.01 tpy	0.052 lb/1000 gal	API Table 4-7	c	4.91E-04 tpy	0.01 tpy
Incinerator	Cruising	675 hr/yr	175 lb/hr	N A	0.032 kg/MMBtu	EPA Reporting Rule	f	2.58E-02 tpy	0.54 tpy	0.032 kg/MMBtu	EPA Reporting Rul	f	2.58E-02 tpy	0.54 tpy
		675												

*Heat input rate

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Methane

Emission Unit Description	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	CH4 Emission Factor	Emission Factor Reference		Annual CH4 Emission Rate	CO2 Equivalent (CO2e)	CH4 Emission Factor	Emission Factor Reference		Annual CH4 Emission Rate	CO2 Equivalent (CO2e)
					Method 1					Method 2				
Anchor Handler Tug Supply Vessel (AHTS)														
Main Engine 1	Cruising	hr/yr	99 gal/hr	1,400 kW	6.35E-05 lb/hp-hr	AP-42, Table 3.4-1	k	4.76E-06 tpy	0.00 tpy	0.0081 lb/MMBtu	API Table 4-9	g	4.26E-06 tpy	0.00 tpy
Main Engine 2	Cruising	0.08 hr/yr	99 gal/hr	1,400 kW	6.35E-05 lb/hp-hr	AP-42, Table 3.4-1	k	4.76E-06 tpy	0.00 tpy	0.0081 lb/MMBtu	API Table 4-9	g	4.26E-06 tpy	0.00 tpy
Main Engine 1	Mooring Assist	0.08 hr/yr	71 gal/hr	1,000 kW	6.35E-05 lb/hp-hr	AP-42, Table 3.4-1	k	3.83E-04 tpy	0.01 tpy	0.0081 lb/MMBtu	API Table 4-9	g	3.42E-04 tpy	0.01 tpy
Main Engine 2	Mooring Assist	hr/yr	71 gal/hr	1,000 kW	6.35E-05 lb/hp-hr	AP-42, Table 3.4-1	k	3.83E-04 tpy	0.01 tpy	0.0081 lb/MMBtu	API Table 4-9	g	3.42E-04 tpy	0.01 tpy
Tow Winch Engine	Mooring Assist	9 hr/yr	11 gal/hr	150 kW	2.22E-04 lb/hp-hr	AP-42, Table 3.3-1	k	2.01E-04 tpy	0.00 tpy	0.032 lb/MMBtu	API Table 4-9	g	2.03E-04 tpy	0.00 tpy
Thruster Engine 1	Mooring Assist	9 hr/yr	27 gal/hr	375 kW	2.22E-04 lb/hp-hr	AP-42, Table 3.3-1	k	5.03E-04 tpy	0.01 tpy	0.032 lb/MMBtu	API Table 4-9	g	5.07E-04 tpy	0.01 tpy
Thruster Engine 2	Mooring Assist	9 hr/yr	27 gal/hr	375 kW	2.22E-04 lb/hp-hr	AP-42, Table 3.3-1	k	5.03E-04 tpy	0.01 tpy	0.032 lb/MMBtu	API Table 4-9	g	5.07E-04 tpy	0.01 tpy
Generator 1	Anchored	9 hr/yr	18 gal/hr	250 kW	2.22E-04 lb/hp-hr	AP-42, Table 3.3-1	k	4.45E-02 tpy	0.94 tpy	0.032 lb/MMBtu	API Table 4-9	g	4.49E-02 tpy	0.94 tpy
Generator 1	Mooring Assist	9 1,196 hr/yr	21 gal/hr	300 kW	2.22E-04 lb/hp-hr	AP-42, Table 3.3-1	k	4.02E-04 tpy	0.01 tpy	0.032 lb/MMBtu	API Table 4-9	g	4.05E-04 tpy	0.01 tpy
Generator 1	Cruising	hr/yr	18 gal/hr	250 kW	2.22E-04 lb/hp-hr	AP-42, Table 3.3-1	k	2.98E-06 tpy	0.00 tpy	0.032 lb/MMBtu	API Table 4-9	g	3.00E-06 tpy	0.00 tpy
Generator 2	DP	0.08 hr/yr	11 gal/hr	150 kW	2.22E-04 lb/hp-hr	AP-42, Table 3.3-1	k	2.67E-02 tpy	0.56 tpy	0.032 lb/MMBtu	API Table 4-9	g	2.69E-02 tpy	0.57 tpy
Emergency Generator	Non-propulsion	1,196 hr/yr	20 gal/hr	276 hp	2.22E-04 lb/hp-hr	AP-42, Table 3.3-1	j	2.45E-04 tpy	0.01 tpy	0.032 lb/MMBtu	API Table 4-9	b	2.47E-04 tpy	0.01 tpy
Oil Spill Response Vessel 1 (Dedicated OSRV)		8												
Main Engine 1	Cruising	864 hr/yr	77.5 gal/hr	-- --	0.0081 lb/MMBtu	AP-42, Table 3.4-1	a	3.58E-02 tpy	0.75 tpy	0.0081 lb/MMBtu	API Table 4-9	a	3.58E-02 tpy	0.75 tpy
Main Engine 2	Cruising	864 hr/yr	77.5 gal/hr	-- --	0.0081 lb/MMBtu	AP-42, Table 3.4-1	a	3.58E-02 tpy	0.75 tpy	0.0081 lb/MMBtu	API Table 4-9	a	3.58E-02 tpy	0.75 tpy
Thruster Engine 1	Laying Boom	36 hr/yr	11.6 gal/hr	-- --	0.0081 lb/MMBtu	AP-42, Table 3.4-1	a	2.23E-04 tpy	0.00 tpy	0.0081 lb/MMBtu	API Table 4-9	a	2.23E-04 tpy	0.00 tpy
Thruster Engine 2	Laying Boom	36 hr/yr	10.6 gal/hr	-- --	0.0081 lb/MMBtu	AP-42, Table 3.4-1	a	2.04E-04 tpy	0.00 tpy	0.0081 lb/MMBtu	API Table 4-9	a	2.04E-04 tpy	0.00 tpy
Thruster Engine 3	Laying Boom	36 hr/yr	7.1 gal/hr	-- --	0.0081 lb/MMBtu	AP-42, Table 3.4-1	a	1.37E-04 tpy	0.00 tpy	0.0081 lb/MMBtu	API Table 4-9	a	1.37E-04 tpy	0.00 tpy
Generator 1	Cruising/DP/Anchored	1,164 hr/yr	11.54 gal/hr	-- --	0.0081 lb/MMBtu	AP-42, Table 3.3-1	a	7.19E-03 tpy	0.15 tpy	0.0081 lb/MMBtu	API Table 4-9	a	7.19E-03 tpy	0.15 tpy
Generator 1	Laying Boom	36 hr/yr	11.54 gal/hr	-- --	0.0081 lb/MMBtu	AP-42, Table 3.3-1	a	2.22E-04 tpy	0.00 tpy	0.0081 lb/MMBtu	API Table 4-9	a	2.22E-04 tpy	0.00 tpy
Generator 2	Cruising/DP	1,164 hr/yr	11.54 gal/hr	-- --	0.0081 lb/MMBtu	AP-42, Table 3.3-1	a	7.19E-03 tpy	0.15 tpy	0.0081 lb/MMBtu	API Table 4-9	a	7.19E-03 tpy	0.15 tpy
Generator 2	Laying Boom	36 hr/yr	11.54 gal/hr	-- --	0.0081 lb/MMBtu	AP-42, Table 3.3-1	a	2.22E-04 tpy	0.00 tpy	0.0081 lb/MMBtu	API Table 4-9	a	2.22E-04 tpy	0.00 tpy
Emergency Generator	Cruising/DP	8 hr/yr	15 gal/hr	279 hp	2.22E-04 lb/hp-hr	AP-42, Table 3.3-1	j	2.48E-04 tpy	0.01 tpy	0.032 lb/MMBtu	API Table 4-9	b	2.50E-04 tpy	0.01 tpy
Oil Spill Response Vessel 2														
Main Engine 1	Cruising	60 hr/yr	77.5 gal/hr	-- --	0.0081 lb/MMBtu	AP-42, Table 3.4-1	a	2.49E-03 tpy	0.05 tpy	0.0081 lb/MMBtu	API Table 4-9	a	2.49E-03 tpy	0.05 tpy
Main Engine 2	Cruising	60 hr/yr	77.5 gal/hr	-- --	0.0081 lb/MMBtu	AP-42, Table 3.4-1	a	2.49E-03 tpy	0.05 tpy	0.0081 lb/MMBtu	API Table 4-9	a	2.49E-03 tpy	0.05 tpy
Thruster Engine 1	Cruising	- hr/yr	- gal/hr	-- --	0.0081 lb/MMBtu	AP-42, Table 3.4-1	a	0.00E+00 tpy	0.00 tpy	0.0081 lb/MMBtu	API Table 4-9	a	0.00E+00 tpy	0.00 tpy
Thruster Engine 2	Cruising	- hr/yr	- gal/hr	-- --	0.0081 lb/MMBtu	AP-42, Table 3.4-1	a	0.00E+00 tpy	0.00 tpy	0.0081 lb/MMBtu	API Table 4-9	a	0.00E+00 tpy	0.00 tpy
Thruster Engine 3	Cruising	- hr/yr	- gal/hr	-- --	0.0081 lb/MMBtu	AP-42, Table 3.4-1	a	0.00E+00 tpy	0.00 tpy	0.0081 lb/MMBtu	API Table 4-9	a	0.00E+00 tpy	0.00 tpy
Generator 1	Cruising/DP	30 hr/yr	11.54 gal/hr	-- --	0.0081 lb/MMBtu	AP-42, Table 3.3-1	a	1.85E-04 tpy	0.00 tpy	0.0081 lb/MMBtu	API Table 4-9	a	1.85E-04 tpy	0.00 tpy
Generator 2	Cruising/DP	30 hr/yr	11.54 gal/hr	-- --	0.0081 lb/MMBtu	AP-42, Table 3.3-1	a	1.85E-04 tpy	0.00 tpy	0.0081 lb/MMBtu	API Table 4-9	a	1.85E-04 tpy	0.00 tpy
Emergency Generator	Cruising/DP	8 hr/yr	15 gal/hr	279 hp	2.22E-04 lb/hp-hr	AP-42, Table 3.3-1	j	2.48E-04 tpy	0.01 tpy	0.032 lb/MMBtu	API Table 4-9	b	2.50E-04 tpy	0.01 tpy
Offshore Supply Vessels (OSV1 & OSV2)														
Main Engine 1	Cruising	378 hr/yr	75 gal/hr	-- --	0.0081 lb/MMBtu	AP-42, Table 3.4-1	a	1.51E-02 tpy	0.32 tpy	0.0081 lb/MMBtu	API Table 4-9	a	1.51E-02 tpy	0.32 tpy
Main Engine 1	Idling	133 hr/yr	67 gal/hr	-- --	0.0081 lb/MMBtu	AP-42, Table 3.4-1	a	4.77E-03 tpy	0.10 tpy	0.0081 lb/MMBtu	API Table 4-9	a	4.77E-03 tpy	0.10 tpy
Main Engine 2	Cruising	378 hr/yr	75 gal/hr	-- --	0.0081 lb/MMBtu	AP-42, Table 3.4-1	a	1.51E-02 tpy	0.32 tpy	0.0081 lb/MMBtu	API Table 4-9	a	1.51E-02 tpy	0.32 tpy
Main Engine 2	Idling	133 hr/yr	67 gal/hr	-- --	0.0081 lb/MMBtu	AP-42, Table 3.4-1	a	4.77E-03 tpy	0.10 tpy	0.0081 lb/MMBtu	API Table 4-9	a	4.77E-03 tpy	0.10 tpy
Thruster Engine 1	DP	756 hr/yr	45 gal/hr	950 bhp	0.0081 lb/MMBtu	AP-42, Table 3.4-1	a	1.82E-02 tpy	0.38 tpy	0.0081 lb/MMBtu	API Table 4-9	a	1.82E-02 tpy	0.38 tpy
Thruster Engine 2	DP	756 hr/yr	45 gal/hr	950 bhp	0.0081 lb/MMBtu	AP-42, Table 3.4-1	a	1.82E-02 tpy	0.38 tpy	0.0081 lb/MMBtu	API Table 4-9	a	1.82E-02 tpy	0.38 tpy
Thruster Engine 3	DP	756 hr/yr	45 gal/hr	950 bhp	0.0081 lb/MMBtu	AP-42, Table 3.4-1	a	1.82E-02 tpy	0.38 tpy	0.0081 lb/MMBtu	API Table 4-9	a	1.82E-02 tpy	0.38 tpy
Generator	Cruising/DP/Idle	634 hr/yr	27 gal/hr	400 kW	0.032 lb/MMBtu	AP-42, Table 3.3-1	a	3.62E-02 tpy	0.76 tpy	0.032 lb/MMBtu	API Table 4-9	a	3.62E-02 tpy	0.76 tpy
Generator	Cruising/DP/Idle	634 hr/yr	27 gal/hr	400 kW	0.032 lb/MMBtu	AP-42, Table 3.3-1	a	3.62E-02 tpy	0.76 tpy	0.032 lb/MMBtu	API Table 4-9	a	3.62E-02 tpy	0.76 tpy
Generator	Cruising/DP/Idle	0 hr/yr	27 gal/hr	400 kW	0.032 lb/MMBtu	AP-42, Table 3.3-1	a	0.00E+00 tpy	0.00 tpy	0.032 lb/MMBtu	API Table 4-9	a	0.00E+00 tpy	0.00 tpy
Emergency Generator	Cruising/DP/Idle	8 hr/yr	8 gal/hr	99 kW	0.032 lb/MMBtu	AP-42, Table 3.3-1	a	1.35E-04 tpy	0.00 tpy	0.032 lb/MMBtu	API Table 4-9	a	1.35E-04 tpy	0.00 tpy
Ware Vessel (WV) w/ AHTS and OSV backup														
Main Engine 1	Cruising	360 hr/yr	87 gal/hr	-- --	0.0081 lb/MMBtu	AP-42, Table 3.4-1	a	1.68E-02 tpy	0.35 tpy	0.0081 lb/MMBtu	API Table 4-9	a	1.68E-02 tpy	0.35 tpy
Main Engine 2	Cruising	360 hr/yr	87 gal/hr	-- --	0.0081 lb/MMBtu	AP-42, Table 3.4-1	a	1.68E-02 tpy	0.35 tpy	0.0081 lb/MMBtu	API Table 4-9	a	1.68E-02 tpy	0.35 tpy
Main Engine 3	DP/Idling	820 hr/yr	81 gal/hr	-- --	0.0081 lb/MMBtu	AP-42, Table 3.4-1	a	3.55E-02 tpy	0.75 tpy	0.0081 lb/MMBtu	API Table 4-9	a	3.55E-02 tpy	0.75 tpy
Main Engine 4	DP/Idling	820 hr/yr	81 gal/hr	-- --	0.0081 lb/MMBtu	AP-42, Table 3.4-1	a	3.55E-02 tpy	0.75 tpy	0.0081 lb/MMBtu	API Table 4-9	a	3.55E-02 tpy	0.75 tpy
Generator 1	Cruising/DP/Idling	590 hr/yr	32 gal/hr	504 kW	0.0081 lb/MMBtu	AP-42, Table 3.4-1	a	1.01E-02 tpy	0.21 tpy	0.0081 lb/MMBtu	API Table 4-9	a	1.01E-02 tpy	0.21 tpy
Generator 2	Cruising/DP/Idling	590 hr/yr	32 gal/hr	504 kW	0.0081 lb/MMBtu	AP-42, Table 3.4-1	a	1.01E-02 tpy	0.21 tpy	0.0081 lb/MMBtu	API Table 4-9	a	1.01E-02 tpy	0.21 tpy
Generator 3	Cruising/DP/Idling	0 hr/yr	32 gal/hr	504 kW	0.0081 lb/MMBtu	AP-42, Table 3.4-1	a	0.00E+00 tpy	0.00 tpy	0.0081 lb/MMBtu	API Table 4-9	a	0.00E+00 tpy	0.00 tpy
Emergency Generator	Cruising/DP/Idling	8 hr/yr	12.8 gal/hr	170 kW	0.032 lb/MMBtu	AP-42, Table 3.3-1	a	2.16E-04 tpy	0.00 tpy	0.032 lb/MMBtu	API Table 4-9	a	2.16E-04 tpy	0.00 tpy

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Methane

Emission Unit Description	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	CH4 Emission Factor	Emission Factor Reference		Annual CH4 Emission Rate	CO2 Equivalent (CO2e)	CH4 Emission Factor	Emission Factor Reference		Annual CH4 Emission Rate	CO2 Equivalent (CO2e)
					Method 1					Method 2				
34' boom work boats - 4														
WB-1 Propulsion Engine 1	Cruising	48 hr/yr	15 gal/hr	300 hp	0.032 lb/MMBtu	AP-42, Table 3.3-1	a	1.53E-03 tpy	0.03 tpy	0.032 lb/MMBtu	API Table 4-9	a	1.53E-03 tpy	0.03 tpy
WB-1 Propulsion Engine 2	Cruising	48 hr/yr	15 gal/hr	300 hp	0.032 lb/MMBtu	AP-42, Table 3.3-1	a	1.53E-03 tpy	0.03 tpy	0.032 lb/MMBtu	API Table 4-9	a	1.53E-03 tpy	0.03 tpy
WB-2 Propulsion Engine 1	Cruising	48 hr/yr	15 gal/hr	300 hp	0.032 lb/MMBtu	AP-42, Table 3.3-1	a	1.53E-03 tpy	0.03 tpy	0.032 lb/MMBtu	API Table 4-9	a	1.53E-03 tpy	0.03 tpy
WB-2 Propulsion Engine 2	Cruising	48 hr/yr	15 gal/hr	300 hp	0.032 lb/MMBtu	AP-42, Table 3.3-1	a	1.53E-03 tpy	0.03 tpy	0.032 lb/MMBtu	API Table 4-9	a	1.53E-03 tpy	0.03 tpy
WB-3 Propulsion Engine 1	Cruising	48 hr/yr	15 gal/hr	300 hp	0.032 lb/MMBtu	AP-42, Table 3.3-1	a	1.53E-03 tpy	0.03 tpy	0.032 lb/MMBtu	API Table 4-9	a	1.53E-03 tpy	0.03 tpy
WB-3 Propulsion Engine 2	Cruising	48 hr/yr	15 gal/hr	300 hp	0.032 lb/MMBtu	AP-42, Table 3.3-1	a	1.53E-03 tpy	0.03 tpy	0.032 lb/MMBtu	API Table 4-9	a	1.53E-03 tpy	0.03 tpy
WB-4 Propulsion Engine 1	Cruising	48 hr/yr	15 gal/hr	300 hp	0.032 lb/MMBtu	AP-42, Table 3.3-1	a	1.53E-03 tpy	0.03 tpy	0.032 lb/MMBtu	API Table 4-9	a	1.53E-03 tpy	0.03 tpy
WB-4 Propulsion Engine 2	Cruising	48 hr/yr	15 gal/hr	300 hp	0.032 lb/MMBtu	AP-42, Table 3.3-1	a	1.53E-03 tpy	0.03 tpy	0.032 lb/MMBtu	API Table 4-9	a	1.53E-03 tpy	0.03 tpy
Marine Research Vessel														
Main Engine	Cruising	600 hr/yr	45 gal/hr	850 hp	6.35E-05 lb/hp-hr	AP-42, Table 3.4-1	j	1.62E-02 tpy	0.34 tpy	0.0081 lb/MMBtu	API Table 4-9	b	0.014 tpy	0.304 tpy
Generator 1	Cruising	600 hr/yr	10 gal/hr	135 kW	2.22E-04 lb/hp-hr	AP-42, Table 3.3-1	k	1.21E-02 tpy	0.25 tpy	0.032 lb/MMBtu	API Table 4-9	g	0.012 tpy	0.255 tpy
Generator 2	Cruising	600 hr/yr	6 gal/hr	90 kW	2.22E-04 lb/hp-hr	AP-42, Table 3.3-1	k	8.05E-03 tpy	0.17 tpy	0.032 lb/MMBtu	API Table 4-9	g	0.008 tpy	0.170 tpy
Generator 3	Cruising	600 hr/yr	3 gal/hr	40 kW	2.22E-04 lb/hp-hr	AP-42, Table 3.3-1	k	3.58E-03 tpy	0.08 tpy	0.032 lb/MMBtu	API Table 4-9	g	0.004 tpy	0.076 tpy
Spill Storage Tanker														
Main Engine 1	Cruising	5 hr/yr	1031 gal/hr	19,460 bhp	6.35E-05 lb/hp-hr	AP-42, Table 3.4-1	j	2.91E-03 tpy	0.06 tpy	0.0081 lb/MMBtu	API Table 4-9		0.003 tpy	0.073 tpy
Generator 1	Anchored/Cruising	29 hr/yr	43 gal/hr	600 kW	6.35E-05 lb/hp-hr	AP-42, Table 3.4-1	k	7.40E-04 tpy	0.02 tpy	0.0081 lb/MMBtu	API Table 4-9		0.001 tpy	0.014 tpy
Generator 2	Cruising	29 hr/yr	43 gal/hr	600 kW	6.35E-05 lb/hp-hr	AP-42, Table 3.4-1	k	7.40E-04 tpy	0.02 tpy	0.0081 lb/MMBtu	API Table 4-9		0.001 tpy	0.014 tpy
Generator 3	Anchored	- hr/yr	0 gal/hr	- kW	6.35E-05 lb/hp-hr	AP-42, Table 3.4-1	k	0.00E+00 tpy	0.00 tpy	0.0081 lb/MMBtu	API Table 4-9		0.000 tpy	0.000 tpy
Emergency Generator	Anchored	- hr/yr	0 gal/hr	- kW	2.22E-04 lb/hp-hr	AP-42, Table 3.3-1	k	0.00E+00 tpy	0.00 tpy	0.032 lb/MMBtu	API Table 4-9		0.000 tpy	0.000 tpy
Boiler 1	Anchored/Cruising	53 hr/yr	4900 kg/hr	212 MMBtu/hr*	0.052 lb/1000 gal	AP-42, Table 1.3-3	c	2.20E-03 tpy	0.05 tpy	0.052 lb/1000 gal	API Table 4-7	c	2.20E-03 tpy	0.05 tpy
Boiler 2	Anchored	- hr/yr	0 kg/hr	- MMBtu/hr*	0.052 lb/1000 gal	AP-42, Table 1.3-3	c	0.00E+00 tpy	0.00 tpy	0.052 lb/1000 gal	API Table 4-7	c	0.00E+00 tpy	0.00 tpy

*Heat input rate

All Vessels Fuel Tanks

Fuel Tank	NA	2,400 hr/yr	2,880,158 gal/yr*	N A	NA	NA		NA	NA	NA	NA		NA	NA

*Max throughput

1 1.3405 hp/kW; 454g/lb; Break Specific Fuel Consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1)
2 Ultra Low Sulfur Diesel #1 (ULSD): Fuel Heat Content of 132,096 Btu/gal; Density of 0.8094 kg/L; so 6.74 lbs/gal diesel is assumed (Tesoro/Kenai Refinery).
3 Incinerator Fuel Heat Content (Waste) of 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17). Incinerators will burn ULSD for ignition purposes only.
5 Max Fuel Usage has been calculated from Max Output Capacity where not available from manufacturer specifications.
6 An equivalent of two main drilling engines at 100% load will operate continuously for up to 4800 hours per season. All four main drilling engines will operate at 100% load for up to 48 hours per season.
7 Mud degassing rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977)
8 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 6 times per year).
9 Drill Rig Incinerator Operating Hours (65 tons/season) = (840 ft3 waste/wk) ÷ (27 ft3/yd3) x (14 wks/season) x (300 lbs/yd3 (EPA factor)) ÷ (2,000 lb/ton);
840 ft3 = 9,333 lbs/week material produced for incineration, 300 lbs/cubic foot density for waste, incinerator same size as on Discoverer (276 bs/hr)
10 OSV & Ware Vessel assume operation of up to 100 hrs/season for open water idling in the 25 mile zone, if weather delays off-loading.
11 Fifth work boat will be used to lay boom (during re-fueling) during spill exercises only if the OSRV is not used.
12 Incinerator AP-42 Table 2.1-12 emission factors are for Modular Excess Air Combustors.
13 It is assumed that brake horse power (bhp) ≈ horse power (hp).
14 API is American Petroleum Institute Compendium on Green House Gas Emission
15 Drill Rig Cement Engines Vendor Equipment emission factor is from CAT Industrial Engine Performance Data [PQ0089] sent in an email from Dave Newsad entitled "FWD: ConocoPhillips Project Caterpillar Engines" dated 1/11/2010.
16 Drill Rig Emergency Back-up Engines and Logging Winch Engine Vendor Equipment emission factor is from an email from Dave Newsad entitled "FWD: Follow up help- RE: Caterpillar engine certification help" dated 1/08/2010.
17 Method 1: Emission Factors were derived from the following sources with preference given respectively: AP-42, API Compendimum, EPA Reporting Rule Factors.
18 Method 2: Emission Factors were derived from the following sources with preference given respectively: Vendor Equipment Factors, API Compendimum, EPA Reporting Rule Factors.
19 AP-42 Table 3.3-1, 9% methane from TOC based on large engine break down provided on Table 3.4-1.
20 Global Warming Potentails used to calculate Carbon Dioxide Equivalent (CO2e) are from the API Compendium Table 3-1.

Note
a Emissions (tons) = Emission Factor (lb/MMBtu) x Max Fuel Usage (gal/hr) x Fuel Heat Content (132,096 Btu/gal) x Allowable Operation (hr/yr) x (1 ton/2,000lb)
b Emissions (tons) = Emission Factor (lb/MMBtu) x Max Output Capacity (hp) x Fuel Consumption Rate (7,000 Btu/hp-h) x Allowable Operation (hr/yr) x (1 ton/2,000 lb)
c Emissions (tons) = Emission Factor (lb/1,000 gal) x Heat Input Rate (MMBtu/hr) x (1 gal/132,096 Btu) x Allowable Operation (hr/yr) x (1 ton/2,000 lb)
d Emissions (tons) = Emission Factor (tonne/drilling day) x (1.102ton/1tonne) x Allowable Operation (# of drilling days/year)
e Emissions (tons) = Emission Factor (kg/MMBtu) x (2.2 lb/kg) x Waste Heat Content (6,203 Btu/gal) x Allowable Operation (ton/yr)
f Emissions (tons) = Emission Factor (kg/MMBtu) x Allowable Operation (hr/yr) x (2.2 lb/kg) x Fuel Heat Content (6,203 Btu/gal) x Max Fuel Use (lb/hr) s (1 ton/2,000 lb)
g Emissions (tons) = Emission Factor (lb/MMBtu) x Max Output Capacity (kW) x Fuel Consumption Rate (7,000 Btu/hp-h) x (1.3405 hp/kW) x Allowable Operation (hr/yr) x (1 ton/2,000 lb)
h Hourly Emission Rate (lb/hr) = Emission Factor (lb/MMBtu) x Max Output Capacity (kW) x Max Fuel Usage (g/kW-h) x Allowable Operation (hr/yr) x (1lb/454g) x Fuel Density (1lb/6.74) x Fuel Heat Content (132,096Btu/gal) x (1ton/2000lb)
i Hourly Emission Rate (lb/hr) = Emission Factor (lb/hp-hr) x Max Allowable Operation (hr/yr) x Max Output Capacity (kW) x (1.34HP/kW) x (1 ton/2000lb)
j Emissions (tons) = Emission Factor (lb/hp-hr) x Max Output Capacity (hp) x Allowable Operation (hr/yr) x (1ton/2000lb)
k Emissions (tons) = Emission Factor (lb/hp-h) x Max Output Capacity (kW) x (1.3405 hp/1 kW) x Allowable Operation (hr/yr) x (1 ton/2,000 lb)

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Nitrous Oxide

Emission Unit Description	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	N2O Emission Factor	Emission Factor Reference		Annual N2O Emission Rate	Equivalent (CO2e)	N2O Emission Factor	Emission Factor Reference		Annual N2O Emission Rate	Equivalent (CO2e)
					Method 1					Method 2				
Drill Rig Equipment														
Main Drill Rig Engine 1	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	h	1.81E-02 tpy	5.62 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	h	1.81E-02 tpy	5.62 tpy
Main Drill Rig Engine 1	Preload	15 hr/yr	217 g/kWh	1,249 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	h	1.22E-04 tpy	3.80E-02 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	h	1.22E-04 tpy	3.80E-02 tpy
Main Drill Rig Engine 1	Preload Hold & Discharge	9 hr/yr	358 g/kWh	256 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	h	2.48E-05 tpy	7.70E-03 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	h	2.48E-05 tpy	7.70E-03 tpy
Main Drill Rig Engine 1	Jackup to Final Air Gap	3 hr/yr	221 g/kWh	999 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	h	1.99E-05 tpy	6.18E-03 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	h	1.99E-05 tpy	6.18E-03 tpy
Main Drill Rig Engine 1	Prepare for Drilling	18 hr/yr	205.8 g/kWh	2,480 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	h	2.77E-04 tpy	8.58E-02 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	h	2.77E-04 tpy	8.58E-02 tpy
Main Drill Rig Engine 2	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	h	1.81E-02 tpy	5.62 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	h	1.81E-02 tpy	5.62 tpy
Main Drill Rig Engine 2	Preload	15 hr/yr	217 g/kWh	1,249 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	h	1.22E-04 tpy	3.80E-02 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	h	1.22E-04 tpy	3.80E-02 tpy
Main Drill Rig Engine 2	Preload Hold & Discharge	9 hr/yr	358 g/kWh	256 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	h	2.48E-05 tpy	7.70E-03 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	h	2.48E-05 tpy	7.70E-03 tpy
Main Drill Rig Engine 2	Jackup to Final Air Gap	3 hr/yr	221 g/kWh	999 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	h	1.99E-05 tpy	6.18E-03 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	h	1.99E-05 tpy	6.18E-03 tpy
Main Drill Rig Engine 2	Prepare for Drilling	18 hr/yr	205.8 g/kWh	2,480 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	h	2.77E-04 tpy	8.58E-02 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	h	2.77E-04 tpy	8.58E-02 tpy
Main Drill Rig Engine 3	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	h	1.81E-02 tpy	5.62 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	h	1.81E-02 tpy	5.62 tpy
Main Drill Rig Engine 3	Preload	15 hr/yr	358 g/kWh	256 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	h	4.14E-05 tpy	1.28E-02 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	h	4.14E-05 tpy	1.28E-02 tpy
Main Drill Rig Engine 3	Preload Hold & Discharge	9 hr/yr	358 g/kWh	256 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	h	2.48E-05 tpy	7.70E-03 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	h	2.48E-05 tpy	7.70E-03 tpy
Main Drill Rig Engine 3	Jackup to Final Air Gap	3 hr/yr	221 g/kWh	999 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	h	1.99E-05 tpy	6.18E-03 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	h	1.99E-05 tpy	6.18E-03 tpy
Main Drill Rig Engine 4	Drilling mode	1,179 hr/yr	205.8 g/kWh	2,480 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	h	1.81E-02 tpy	5.62E+00 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	h	1.81E-02 tpy	5.62 tpy
Emergency Back-up Engine	Drilling mode	75 hr/yr	205 g/kWh	968 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	h	4.48E-04 tpy	1.39E-01 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	h	4.48E-04 tpy	0.14 tpy
Cement Engine 1	Drilling mode	131 hr/yr	29 gal/hr	403 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	a	4.61E-05 tpy	0.01 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	4.61E-05 tpy	0.01 tpy
Cement Engine 2	Drilling mode	131 hr/yr	29 gal/hr	403 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	a	4.61E-05 tpy	0.01 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	4.61E-05 tpy	0.01 tpy
Logging Winch	Drilling mode	273 hr/yr	13 gal/hr	187 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	g	3.34E-04 tpy	0.10 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	g	3.34E-04 tpy	0.10 tpy
Heater 1	Drilling mode	2,400 hr/yr	26 gal/hr	3.5 MMBtu/hr*	0.11 lb/1,000 gal	AP-42 Table 1.3-8	b	3.50E-03 tpy	1.08 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	d	5.86E-03 tpy	1.82 tpy
Heater 2	Drilling mode	2,400 hr/yr	26 gal/hr	3.5 MMBtu/hr*	0.11 lb/1,000 gal	AP-42 Table 1.3-8	b	3.50E-03 tpy	1.08 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	d	5.86E-03 tpy	1.82 tpy
Incinerator	Drilling mode	65 tons/yr	276 lbs/hr	N A	0.0042 kg/MMBtu	EPA Reporting Rule	e	3.74E-03 tpy	1.16 tpy	0.0042 kg/MMBtu	EPA Reporting Rule	e	3.74E-03 tpy	1.16 tpy
Fuel Tank 1	Drilling mode	2,400 hrs/yr	470,220 gal/yr**	N A	NA	NA		NA	N A	NA	NA		NA	NA
Fuel Tank 2	Drilling mode	2,400 hrs/yr	470,220 gal/yr**	N A	NA	NA		NA	N A	NA	NA		NA	NA
Mud Degassing	Drilling mode	100 days/yr	NA	20,000 scf/day	NA	NA		NA	N A	NA	NA		NA	NA
				**Max throughput	*Heat input rate									
Ice Breaker 1														
Main Engine 1	Cruising	675 hr/yr	426 gal/hr	8,046 hp	6.33E-07 tonnes/MMBtu	API Table 4-5	c	2.65E-02 tpy	8.22 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	c	2.65E-02 tpy	8.22 tpy
Main Engine 2	Cruising	675 hr/yr	426 gal/hr	8,046 hp	6.33E-07 tonnes/MMBtu	API Table 4-5	c	2.65E-02 tpy	8.22 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	c	2.65E-02 tpy	8.22 tpy
Main Engine 3	Cruising	675 hr/yr	320 gal/hr	6,035 hp	6.33E-07 tonnes/MMBtu	API Table 4-5	c	1.99E-02 tpy	6.17 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	c	1.99E-02 tpy	6.17 tpy
Main Engine 4	Cruising	675 hr/yr	320 gal/hr	6,035 hp	6.33E-07 tonnes/MMBtu	API Table 4-5	c	1.99E-02 tpy	6.17 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	c	1.99E-02 tpy	6.17 tpy
Harbor Generator	Cruising	8 hr/yr	50 gal/hr	952 hp	6.33E-07 tonnes/MMBtu	API Table 4-5	c	3.72E-05 tpy	0.01 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	c	3.72E-05 tpy	0.01 tpy
Emergency Generator	Cruising	8 hr/yr	21 gal/hr	402 hp	6.33E-07 tonnes/MMBtu	API Table 4-5	c	1.57E-05 tpy	0.00 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	c	1.57E-05 tpy	0.00 tpy
Boiler 1	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	0.11 lb/1,000 gal	AP-42 Table 1.3-8	i	1.54E-06 tpy	0.00 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	j	0.002 tpy	0.54 tpy
Boiler 2	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	0.11 lb/1,000 gal	AP-42 Table 1.3-8	i	1.54E-06 tpy	0.00 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	j	0.002 tpy	0.54 tpy
Incinerator	Cruising	675 hr/yr	175 lb/hr	N A	0.0042 kg/MMBtu	EPA Reporting Rule	f	3.39E-03 tpy	1.05 tpy	0.0042 kg/MMBtu	EPA Reporting Rule	f	3.39E-03 tpy	1.05 tpy
					*Heat input rate									
Ice Breaker 2														
Main Engine 1	Cruising	675 hr/yr	426 gal/hr	8,046 hp	6.33E-07 tonnes/MMBtu	API Table 4-5	c	2.65E-02 tpy	8.22 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	c	2.65E-02 tpy	8.22 tpy
Main Engine 2	Cruising	675 hr/yr	426 gal/hr	8,046 hp	6.33E-07 tonnes/MMBtu	API Table 4-5	c	2.65E-02 tpy	8.22 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	c	2.65E-02 tpy	8.22 tpy
Main Engine 3	Cruising	675 hr/yr	320 gal/hr	6,035 hp	6.33E-07 tonnes/MMBtu	API Table 4-5	c	1.99E-02 tpy	6.17 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	c	1.99E-02 tpy	6.17 tpy
Main Engine 4	Cruising	675 hr/yr	320 gal/hr	6,035 hp	6.33E-07 tonnes/MMBtu	API Table 4-5	c	1.99E-02 tpy	6.17 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	c	1.99E-02 tpy	6.17 tpy
Harbor Generator	Cruising	8 hr/yr	50 gal/hr	952 hp	6.33E-07 tonnes/MMBtu	API Table 4-5	c	3.72E-05 tpy	0.01 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	c	3.72E-05 tpy	0.01 tpy
Emergency Generator	Cruising	8 hr/yr	21 gal/hr	402 hp	6.33E-07 tonnes/MMBtu	API Table 4-5	c	1.57E-05 tpy	0.00 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	c	1.57E-05 tpy	0.00 tpy
Boiler 1	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	0.11 lb/1,000 gal	AP-42 Table 1.3-8	i	1.54E-06 tpy	0.00 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	j	0.002 tpy	0.54 tpy
Boiler 2	Cruising	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*	0.11 lb/1,000 gal	AP-42 Table 1.3-8	i	1.54E-06 tpy	0.00 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	j	0.002 tpy	0.54 tpy
Incinerator	Cruising	675 hr/yr	175 lb/hr	N A	0.0042 kg/MMBtu	EPA Reporting Rule	f	3.39E-03 tpy	1.05 tpy	0.0042 kg/MMBtu	EPA Reporting Rule	f	3.39E-03 tpy	1.05 tpy
					*Heat input rate									

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Nitrous Oxide

Emission Unit Description	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	N2O Emission Factor	Emission Factor Reference		Annual N2O Emission Rate	Equivalent (CO2e)	N2O Emission Factor	Emission Factor Reference		Annual N2O Emission Rate	Equivalent (CO2e)
					Method 1					Method 2				
Anchor Handler Tug Supply Vessel (AHTS)														
Main Engine 1	Cruising	0.08 hr/yr	99 gal/hr	1,400 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	g	7.33E-07 tpy	0.00 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	g	7.33E-07 tpy	0.00 tpy
Main Engine 2	Cruising	0.08 hr/yr	99 gal/hr	1,400 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	g	7.33E-07 tpy	0.00 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	g	7.33E-07 tpy	0.00 tpy
Main Engine 1	Mooring Assist	9 hr/yr	71 gal/hr	1,000 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	g	5.89E-05 tpy	0.02 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	g	5.89E-05 tpy	0.02 tpy
Main Engine 2	Mooring Assist	9 hr/yr	71 gal/hr	1,000 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	g	5.89E-05 tpy	0.02 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	g	5.89E-05 tpy	0.02 tpy
Tow Winch Engine	Mooring Assist	9 hr/yr	11 gal/hr	150 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	g	8.84E-06 tpy	0.00 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	g	8.84E-06 tpy	0.00 tpy
Thruster Engine 1	Mooring Assist	9 hr/yr	27 gal/hr	375 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	g	2.21E-05 tpy	0.01 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	g	2.21E-05 tpy	0.01 tpy
Thruster Engine 2	Mooring Assist	9 hr/yr	27 gal/hr	375 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	g	2.21E-05 tpy	0.01 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	g	2.21E-05 tpy	0.01 tpy
Generator 1	Anchored	1,196 hr/yr	18 gal/hr	250 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	g	1.96E-03 tpy	0.61 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	g	1.96E-03 tpy	0.61 tpy
Generator 1	Mooring Assist	9 hr/yr	21 gal/hr	300 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	g	1.77E-05 tpy	0.01 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	g	1.77E-05 tpy	0.01 tpy
Generator 1	Cruising	0 hr/yr	18 gal/hr	250 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	g	1.31E-07 tpy	0.00 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	g	1.31E-07 tpy	0.00 tpy
Generator 2	DP	1,196 hr/yr	11 gal/hr	150 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	g	1.17E-03 tpy	0.36 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	g	1.17E-03 tpy	0.36 tpy
Emergency Generator	Non-propulsion	8 hr/yr	20 gal/hr	276 hp	6.33E-07 tonnes/MMBtu	API Table 4-5	c	1.08E-05 tpy	0.00 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	c	1.08E-05 tpy	0.00 tpy
Oil Spill Response Vessel 1 (Dedicated OSRV)														
Main Engine 1	Cruising	864 hr/yr	77.5 gal/hr	-- --	6.33E-07 tonnes/MMBtu	API Table 4-5	a	6.17E-03 tpy	1.91 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.006 tpy	1.91 tpy
Main Engine 2	Cruising	864 hr/yr	77.5 gal/hr	-- --	6.33E-07 tonnes/MMBtu	API Table 4-5	a	6.17E-03 tpy	1.91 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.006 tpy	1.91 tpy
Thruster Engine 1	Laying Boom	36 hr/yr	11.6 gal/hr	-- --	6.33E-07 tonnes/MMBtu	API Table 4-5	a	3.85E-05 tpy	0.01 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.000 tpy	0.01 tpy
Thruster Engine 2	Laying Boom	36 hr/yr	10.6 gal/hr	-- --	6.33E-07 tonnes/MMBtu	API Table 4-5	a	3.52E-05 tpy	0.01 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.000 tpy	0.01 tpy
Thruster Engine 3	Laying Boom	36 hr/yr	7.1 gal/hr	-- --	6.33E-07 tonnes/MMBtu	API Table 4-5	a	2.36E-05 tpy	0.01 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.000 tpy	0.01 tpy
Generator 1	Cruising/DP/Anchored	1,164 hr/yr	11.54 gal/hr	-- --	6.33E-07 tonnes/MMBtu	API Table 4-5	a	1.24E-03 tpy	0.38 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.001 tpy	0.38 tpy
Generator 1	Laying Boom	36 hr/yr	11.54 gal/hr	-- --	6.33E-07 tonnes/MMBtu	API Table 4-5	a	3.83E-05 tpy	0.01 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.000 tpy	0.01 tpy
Generator 2	Cruising/DP	1,164 hr/yr	11.54 gal/hr	-- --	6.33E-07 tonnes/MMBtu	API Table 4-5	a	1.24E-03 tpy	0.38 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.001 tpy	0.38 tpy
Generator 2	Laying Boom	36 hr/yr	11.54 gal/hr	-- --	6.33E-07 tonnes/MMBtu	API Table 4-5	a	3.83E-05 tpy	0.01 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	3.83E-05 tpy	0.01 tpy
Emergency Generator	Cruising/DP	8 hr/yr	15 gal/hr	279 hp	6.33E-07 tonnes/MMBtu	API Table 4-5	c	1.09E-05 tpy	0.00 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	c	0.000 tpy	0.00 tpy
Oil Spill Response Vessel 2														
Main Engine 1	Cruising	60 hr/yr	77.5 gal/hr	-- --	6.33E-07 tonnes/MMBtu	API Table 4-5	a	4.28E-04 tpy	0.13 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.000 tpy	0.13 tpy
Main Engine 2	Cruising	60 hr/yr	77.5 gal/hr	-- --	6.33E-07 tonnes/MMBtu	API Table 4-5	a	4.28E-04 tpy	0.13 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.000 tpy	0.13 tpy
Thruster Engine 1	Cruising	- hr/yr	- gal/hr	-- --	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.00E+00 tpy	0.00 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.00E+00 tpy	0.00 tpy
Thruster Engine 2	Cruising	- hr/yr	- gal/hr	-- --	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.00E+00 tpy	0.00 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.00E+00 tpy	0.00 tpy
Thruster Engine 3	Cruising	- hr/yr	- gal/hr	-- --	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.00E+00 tpy	0.00 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.00E+00 tpy	0.00 tpy
Generator 1	Cruising/DP	30 hr/yr	11.54 gal/hr	-- --	6.33E-07 tonnes/MMBtu	API Table 4-5	a	3.19E-05 tpy	0.01 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.000 tpy	0.01 tpy
Generator 2	Cruising/DP	30 hr/yr	11.54 gal/hr	-- --	6.33E-07 tonnes/MMBtu	API Table 4-5	a	3.19E-05 tpy	0.01 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.000 tpy	0.01 tpy
Emergency Generator	Cruising/DP	8 hr/yr	15 gal/hr	279 hp	6.33E-07 tonnes/MMBtu	API Table 4-5	c	1.09E-05 tpy	0.00 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	c	0.000 tpy	0.00 tpy
Offshore Supply Vessels (OSV1 & OSV2)														
Main Engine 1	Cruising	378 hr/yr	75 gal/hr	-- --	6.33E-07 tonnes/MMBtu	API Table 4-5	a	2.59E-03 tpy	0.80 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.003 tpy	0.80 tpy
Main Engine 1	Idling	133 hr/yr	67 gal/hr	-- --	6.33E-07 tonnes/MMBtu	API Table 4-5	a	8.21E-04 tpy	0.25 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.001 tpy	0.25 tpy
Main Engine 2	Cruising	378 hr/yr	75 gal/hr	-- --	6.33E-07 tonnes/MMBtu	API Table 4-5	a	2.59E-03 tpy	0.80 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.003 tpy	0.80 tpy
Main Engine 2	Idling	133 hr/yr	67 gal/hr	-- --	6.33E-07 tonnes/MMBtu	API Table 4-5	a	8.21E-04 tpy	0.25 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.001 tpy	0.25 tpy
Thruster Engine 1	DP	756 hr/yr	45 gal/hr	950 bhp	6.33E-07 tonnes/MMBtu	API Table 4-5	a	3.13E-03 tpy	0.97 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.003 tpy	0.97 tpy
Thruster Engine 2	DP	756 hr/yr	45 gal/hr	950 bhp	6.33E-07 tonnes/MMBtu	API Table 4-5	a	3.13E-03 tpy	0.97 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.003 tpy	0.97 tpy
Thruster Engine 3	DP	756 hr/yr	45 gal/hr	950 bhp	6.33E-07 tonnes/MMBtu	API Table 4-5	a	3.13E-03 tpy	0.97 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.003 tpy	0.97 tpy
Generator	Cruising/DP/Idle	634 hr/yr	27 gal/hr	400 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	a	1.58E-03 tpy	0.49 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.002 tpy	0.49 tpy
Generator	Cruising/DP/Idle	634 hr/yr	27 gal/hr	400 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	a	1.58E-03 tpy	0.49 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.002 tpy	0.49 tpy
Generator	Cruising/DP/Idle	0 hr/yr	27 gal/hr	400 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.00E+00 tpy	0.00 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.00E+00 tpy	0.00 tpy
Emergency Generator	Cruising/DP/Idle	8 hr/yr	8 gal/hr	99 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	a	5.90E-06 tpy	0.00 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.000 tpy	0.00 tpy
Ware Vessel (WV) w/ AHTS and OSV backup														
Main Engine 1	Cruising	360 hr/yr	87 gal/hr	-- --	6.33E-07 tonnes/MMBtu	API Table 4-5	a	2.89E-03 tpy	0.89 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.003 tpy	0.89 tpy
Main Engine 2	Cruising	360 hr/yr	87 gal/hr	-- --	6.33E-07 tonnes/MMBtu	API Table 4-5	a	2.89E-03 tpy	0.89 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.003 tpy	0.89 tpy
Main Engine 3	DP/Idling	820 hr/yr	81 gal/hr	-- --	6.33E-07 tonnes/MMBtu	API Table 4-5	a	6.12E-03 tpy	1.90 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.006 tpy	1.90 tpy
Main Engine 4	DP/Idling	820 hr/yr	81 gal/hr	-- --	6.33E-07 tonnes/MMBtu	API Table 4-5	a	6.12E-03 tpy	1.90 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.006 tpy	1.90 tpy
Generator 1	Cruising/DP/Idling	590 hr/yr	32 gal/hr	504 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	a	1.74E-03 tpy	0.54 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.002 tpy	0.54 tpy
Generator 2	Cruising/DP/Idling	590 hr/yr	32 gal/hr	504 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	a	1.74E-03 tpy	0.54 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.002 tpy	0.54 tpy
Generator 3	Cruising/DP/Idling	0 hr/yr	32 gal/hr	504 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.00E+00 tpy	0.00 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	- tpy	0.00 tpy
Emergency Generator	Cruising/DP/Idling	8 hr/yr	[illegible] gal/hr	170 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	a	9.44E-06 tpy	0.00 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.000 tpy	0.00 tpy

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - Nitrous Oxide

	Emission Unit Description	Classification / Mode	Allowable Operation	Fuel Consumption	Power Output	N2O Emission Factor	Emission Factor Reference		Annual N2O Emission Rate	Equivalent (CO2e)	N2O Emission Factor	Emission Factor Reference		Annual N2O Emission Rate	Equivalent (CO2e)
						Method 1					Method 2				
34' boom work boats - 4															
	WB-1 Propulsion Engine 1	Cruising	48 hr/yr	15 gal/hr	300 hp	6.33E-07 tonnes/MMBtu	API Table 4-5	a	6.68E-05 tpy	0.02 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.000 tpy	0.02 tpy
	WB-1 Propulsion Engine 2	Cruising	48 hr/yr	15 gal/hr	300 hp	6.33E-07 tonnes/MMBtu	API Table 4-5	a	6.68E-05 tpy	0.02 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.000 tpy	0.02 tpy
	WB-2 Propulsion Engine 1	Cruising	48 hr/yr	15 gal/hr	300 hp	6.33E-07 tonnes/MMBtu	API Table 4-5	a	6.68E-05 tpy	0.02 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.000 tpy	0.02 tpy
	WB-2 Propulsion Engine 2	Cruising	48 hr/yr	15 gal/hr	300 hp	6.33E-07 tonnes/MMBtu	API Table 4-5	a	6.68E-05 tpy	0.02 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.000 tpy	0.02 tpy
	WB-3 Propulsion Engine 1	Cruising	48 hr/yr	15 gal/hr	300 hp	6.33E-07 tonnes/MMBtu	API Table 4-5	a	6.68E-05 tpy	0.02 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.000 tpy	0.02 tpy
	WB-3 Propulsion Engine 2	Cruising	48 hr/yr	15 gal/hr	300 hp	6.33E-07 tonnes/MMBtu	API Table 4-5	a	6.68E-05 tpy	0.02 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.000 tpy	0.02 tpy
	WB-4 Propulsion Engine 1	Cruising	48 hr/yr	15 gal/hr	300 hp	6.33E-07 tonnes/MMBtu	API Table 4-5	a	6.68E-05 tpy	0.02 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.000 tpy	0.02 tpy
	WB-4 Propulsion Engine 2	Cruising	48 hr/yr	15 gal/hr	300 hp	6.33E-07 tonnes/MMBtu	API Table 4-5	a	6.68E-05 tpy	0.02 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	a	0.000 tpy	0.02 tpy
Marine Research Vessel															
	Main Engine	Cruising	600 hr/yr	45 gal/hr	850 hp	6.33E-07 tonnes/MMBtu	API Table 4-5	c	2.49E-03 tpy	0.77 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	c	2.49E-03 tpy	0.772 tpy
	Generator 1	Cruising	600 hr/yr	10 gal/hr	135 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	g	5.30E-04 tpy	0.16 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	g	5.30E-04 tpy	0.164 tpy
	Generator 2	Cruising	600 hr/yr	6 gal/hr	90 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	g	3.53E-04 tpy	0.11 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	g	3.53E-04 tpy	0.110 tpy
	Generator 3	Cruising	600 hr/yr	3 gal/hr	40 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	g	1.57E-04 tpy	0.05 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	g	1.57E-04 tpy	0.049 tpy
Spill Storage Tanker															
	Main Engine 1	Cruising	5 hr/yr	1031 gal/hr	19,460 bhp	6.33E-07 tonnes/MMBtu	API Table 4-5	c	4.49E-04 tpy	0.14 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	c	4.49E-04 tpy	0.139 tpy
	Generator 1	Anchored/Cruising	29 hr/yr	43 gal/hr	600 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	c	8.50E-05 tpy	0.03 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	c	8.50E-05 tpy	0.026 tpy
	Generator 2	Cruising	29 hr/yr	43 gal/hr	600 kW	6.33E-07 tonnes/MMBtu	API Table 4-5	c	8.50E-05 tpy	0.03 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	c	8.50E-05 tpy	0.026 tpy
	Generator 3	Anchored	- hr/yr	0 gal/hr	- kW	6.33E-07 tonnes/MMBtu	API Table 4-5	c	0.00E+00 tpy	0.00 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	c	0.00E+00 tpy	0.000 tpy
	Emergency Generator	Anchored	- hr/yr	0 gal/hr	- kW	6.33E-07 tonnes/MMBtu	API Table 4-5	c	0.00E+00 tpy	0.00 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	c	0.00E+00 tpy	0.000 tpy
	Boiler 1	Anchored/Cruising	53 hr/yr	4900 kg/hr	212 MMBtu/hr*	0.11 lb/1,000 gal	AP-42 Table 1.3-8	k	4.64E-03 tpy	1.44 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	d	7.78E-03 tpy	2.41 tpy
	Boiler 2	Anchored	- hr/yr	0 kg/hr	- MMBtu/hr*	0.11 lb/1,000 gal	AP-42 Table 1.3-8	k	0.00E+00 tpy	0.00 tpy	6.33E-07 tonnes/MMBtu	API Table 4-5	d	0.00E+00 tpy	0.00 tpy
					*Heat input rate										
All Vessels Fuel Tanks															
	Fuel Tank	NA	2,400 hr/yr	2,880,158 gal/yr*	N A	NA	NA		NA	NA	NA	NA		NA	NA
					*Max throughput										

1 1.3405 hp/kW; 454g/lb; Break Specific Fuel Consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1)
2 Ultra Low Sulfur Diesel #1 (ULSD): Fuel Heat Content of 132,096 Btu/gal; Density of 0.8094 kg/L; so 6.74 lbs/gal diesel is assumed (Tesoro/Kenai Refinery).
3 Incinerator Fuel Heat Content (Waste) of 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17). Incinerators will burn ULSD for ignition purposes only.
5 Max Fuel Usage has been calculated from Max Output Capacity where not available from manufacturer specifications.
6 An equivalent of two main drilling engines at 100% load will operate continuously for up to 4800 hours per season. All four main drilling engines will operate at 100% load for up to 48 hours per season.
7 Mud degassing rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977)
8 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 6 times per year).
9 Drill Rig Incinerator Operating Hours (65 tons/season) = (840 ft3 waste/wk) ÷ (27 ft3/yd3) x (14 wks/season) x (300 lbs/yd3 (EPA factor)) ÷ (2,000 lb/ton);
840 ft3 = 9,333 lbs/week material produced for incineration, 300 lbs/cubic foot density for waste, incinerator same size as on Discoverer (276 bs/hr)
10 OSV & Ware Vessel assume operation of up to 100 hrs/season for open water idling in the 25 mile zone, if weather delays off-loading.
11 Fifth work boat will be used to lay boom (during re-fueling) during spill exercises only if the OSRV is not used.
12 Incinerator AP-42 Table 2.1-12 emission factors are for Modular Excess Air Combustors.
13 It is assumed that brake horse power (bhp) ≈ horse power (hp).
14 API is American Petroleum Institute Compendium on Green House Gas Emission
15 Drill Rig Cement Engines Vendor Equipment emission factor is from CAT Industrial Engine Performance Data [PQ0089] sent in an email from Dave Newsad entitled "FWD: ConocoPhillips Project Caterpillar Engines" dated 1/11/2010.
16 Drill Rig Emergency Back-up Engines and Logging Winch Engine Vendor Equipment emission factor is from an email from Dave Newsad entitled "FWD: Follow up help- RE: Caterpillar engine certification help" dated 1/08/2010.
17 Method 1: Emission Factors were derived from the following sources with preference given respectively: AP-42, API Compendimum, EPA Reporting Rule Factors.
18 Method 2: Emission Factors were derived from the following sources with preference given respectively: Vendor Equipment Factors, API Compendimum, EPA Reporting Rule Factors.

Note
a Emissions (tons) = Emission Factor (tonnes/MMBtu) x (1.102ton/1tonne) x Max Fuel Use (gal/hr) x Fuel Heat Content (132,096 Btu/gal) x Allowable Operation (hr/yr)
b Emissions (tons) = Emission Factor (lb/1,000 gal) x Heat Input Rate (MMBtu/hr) x Fuel Heat Content (1 gal/132,096 Btu) x Allowable Operation (hr/yr) x (1 ton/2,000 lb)
c Emissions (tons) = Emission Factor (tonnes/MMBtu) x (1.102 ton/tonne) x Max Output Capacity (hp) x Fuel Consumption Rate (7,000 Btu/hp-h) x Allowable Operation (hr/yr)
d Emissions (tons) = Emission Factor (tonnes/MMBtu) x Heat Input Rate (MMBtu/hr) x (1.102 ton/tonne) x Allowable Operation (hr/yr)
e Emissions (tons) = Emission Factor (kg/MMBtu) x Allowable Operation (ton/yr) x (2.2 lb/kg) x Waste Heat Content (6,203 Btu/gal)
f Emissions (tons) = Emission Factor (kg/MMBtu) x Allowable Operation (hr/yr) x (2.2 lb/kg) x Waste Heat Content (6,203 Btu/gal) x Max Fuel Use (lb/hr) x (1 ton/2,000 lb)
g Emissions (tons) = Emission Factor (tonnes/MMBtu) x (1.102ton/1tonne) x Max Output Capacity (kW) x Fuel Consumption Rate (7,000 Btu/hp-h) x (1.3405 hp/kW) x Allowable Operation (hr/yr)
h Emissions (tons) = Emission Factor (tonnes/MMBtu) x (1.102ton/1tonne) x Max Fuel Use (kg/kW-h) x Max Output Capacity (kW) x Allowable Operation (hr/yr) x Fuel Heat Content (132,0
i Emissions (tons) = Emission Factor (lb/1,000 gal) x Max Fuel Input (gal/hr) x Allowable Operation (hr/yr) x (1 ton/2,000 lb)
j Emissions (tons) = Emission Factor (tonnes/MMBtu) x (1.102ton/1tonne) x Allowable Operation (hr/yr) x Max Fuel Consumption (gal/hr)x (132096Btu/gal)
k Emissions (tons) = Emission Factor (lb/1,000 gal) x Max Fuel Input (kg/hr) x Allowable Operation (hr/yr) x (1 ton/2,000 lb) x (1lb/454g) x (1000g/kg) x Fuel Density (1gal/6.74lb)

Devil's Paw Prospect - Proposed Allowable Annual Emissions Inventory - SCR NOx Control Efficiency

	Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Reference			Potential Controlled NOx Emissions		Reference			Potential Uncontrolled NOx Emissions			% Control Efficiency
					Controlled Emission Factor			Hourly Emission Rate	Annual Emission Rate	Uncontrolled Emission Factor			Hourly Emission Rate	Annual Emission Rate		
Drill Rig Equipment																
	Main Drill Rig Engine 1	1,179 hr/yr	206 g/kWh	2,480 kW	1.83 g/kW-h	Wartsila SCR spec	a	10.0 lb/hr	5.9 tpy	8.77 g/kW-hr	Manufacturer's spec	a	47.9 lb/hr	28.2 tpy	d	**79.1**
	Main Drill Rig Engine 1	15 hr/yr	217 g/kWh	1,249 kW	1.83 g/kW-h	Wartsila SCR spec	a	5.0 lb/hr	0.0 tpy	8.77 g/kW-hr	Manufacturer's spec	a	24.1 lb/hr	0.2 tpy	d	**79.1**
	Main Drill Rig Engine 1	9 hr/yr	358 g/kWh	256 kW	1.83 g/kW-h	Wartsila SCR spec	a	1.0 lb/hr	0.0 tpy	8.77 g/kW-hr	Manufacturer's spec	a	4.9 lb/hr	0.0 tpy	d	**79.1**
	Main Drill Rig Engine 1	3 hr/yr	221 g/kWh	999 kW	1.83 g/kW-h	Wartsila SCR spec	a	4.0 lb/hr	0.0 tpy	8.77 g/kW-hr	Manufacturer's spec	a	19.3 lb/hr	0.0 tpy	d	**79.1**
	Main Drill Rig Engine 1	18 hr/yr	206 g/kWh	2,480 kW	1.83 g/kW-h	Wartsila SCR spec	a	10.0 lb/hr	0.1 tpy	8.77 g/kW-hr	Manufacturer's spec	a	47.9 lb/hr	0.4 tpy	d	**79.1**
	Main Drill Rig Engine 2	1,179 hr/yr	206 g/kWh	2,480 kW	1.83 g/kW-h	Wartsila SCR spec	a	10.0 lb/hr	5.9 tpy	8.77 g/kW-hr	Manufacturer's spec	a	47.9 lb/hr	28.2 tpy	d	**79.1**
	Main Drill Rig Engine 2	1,179 hr/yr	206 g/kWh	2,480 kW	1.83 g/kW-h	Wartsila SCR spec	a	10.0 lb/hr	5.9 tpy	8.77 g/kW-hr	Manufacturer's spec	a	47.9 lb/hr	28.2 tpy	d	**79.1**
	Main Drill Rig Engine 2	15 hr/yr	217 g/kWh	1,249 kW	1.83 g/kW-h	Wartsila SCR spec	a	5.0 lb/hr	0.0 tpy	8.77 g/kW-hr	Manufacturer's spec	a	24.1 lb/hr	0.2 tpy	d	**79.1**
	Main Drill Rig Engine 2	9 hr/yr	358 g/kWh	256 kW	1.83 g/kW-h	Wartsila SCR spec	a	1.0 lb/hr	0.0 tpy	8.77 g/kW-hr	Manufacturer's spec	a	4.9 lb/hr	0.0 tpy	d	**79.1**
	Main Drill Rig Engine 2	3 hr/yr	221 g/kWh	999 kW	1.83 g/kW-h	Wartsila SCR spec	a	4.0 lb/hr	0.0 tpy	8.77 g/kW-hr	Manufacturer's spec	a	19.3 lb/hr	0.0 tpy	d	**79.1**
	Main Drill Rig Engine 3	1,179 hr/yr	206 g/kWh	2,480 kW	1.83 g/kW-h	Wartsila SCR spec	a	10.0 lb/hr	5.9 tpy	8.77 g/kW-hr	Manufacturer's spec	a	47.9 lb/hr	28.2 tpy	d	**79.1**
	Main Drill Rig Engine 3	15 hr/yr	358 g/kWh	256 kW	1.83 g/kW-h	Wartsila SCR spec	a	1.0 lb/hr	0.0 tpy	8.77 g/kW-hr	Manufacturer's spec	a	4.9 lb/hr	0.0 tpy	d	**79.1**
	Main Drill Rig Engine 3	9 hr/yr	358 g/kWh	256 kW	1.83 g/kW-h	Wartsila SCR spec	a	1.0 lb/hr	0.0 tpy	8.77 g/kW-hr	Manufacturer's spec	a	4.9 lb/hr	0.0 tpy	d	**79.1**
	Main Drill Rig Engine 3	3 hr/yr	221 g/kWh	999 kW	1.83 g/kW-h	Wartsila SCR spec	a	4.0 lb/hr	0.0 tpy	8.77 g/kW-hr	Manufacturer's spec	a	19.3 lb/hr	0.0 tpy	d	**79.1**
	Main Drill Rig Engine 4	1,179 hr/yr	206 g/kWh	2,480 kW	1.83 g/kW-h	Wartsila SCR spec	a	10.0 lb/hr	5.9 tpy	8.77 g/kW-hr	Manufacturer's spec	a	47.9 lb/hr	28.2 tpy	d	**79.1**
								Total	**29.7 tpy**				**Total**	**142.2 tpy**		
Ice Breaker 1																
	Main Engine 1	675 hr/yr	426 gal/hr	8,046 hp	2.9 g/kW-h	Design Spec	b	38.3 lb/hr	12.94 tpy	0.024 lb/hp-hr	AP-42 Table 3.4-1	b	193.1 lb/hr	65.2 tpy	d	**80.1**
	Main Engine 2	675 hr/yr	426 gal/hr	8,046 hp	2.9 g/kW-h	Design Spec	b	38.3 lb/hr	12.94 tpy	0.024 lb/hp-hr	AP-42 Table 3.4-1	b	193.1 lb/hr	65.2 tpy	d	**80.1**
	Main Engine 3	675 hr/yr	320 gal/hr	6,035 hp	2.9 g/kW-h	Design Spec	b	28.8 lb/hr	9.70 tpy	0.024 lb/hp-hr	AP-42 Table 3.4-1	b	144.8 lb/hr	48.9 tpy	d	**80.1**
	Main Engine 4	675 hr/yr	320 gal/hr	6,035 hp	2.9 g/kW-h	Design Spec	b	28.8 lb/hr	9.70 tpy	0.024 lb/hp-hr	AP-42 Table 3.4-1	b	144.8 lb/hr	48.9 tpy	d	**80.1**
								Total	**45.3 tpy**				**Total**	**228.1 tpy**		
Ice Breaker 2																
	Main Engine 1	675 hr/yr	426 gal/hr	8,046 hp	2.9 g/kW-h	Design Spec	b	38.3 lb/hr	12.94 tpy	0.024 lb/hp-hr	AP-42 Table 3.4-1	b	193.1 lb/hr	65.2 tpy	d	**80.1**
	Main Engine 2	675 hr/yr	426 gal/hr	8,046 hp	2.9 g/kW-h	Design Spec	b	38.3 lb/hr	12.94 tpy	0.024 lb/hp-hr	AP-42 Table 3.4-1	b	193.1 lb/hr	65.2 tpy	d	**80.1**
	Main Engine 3	675 hr/yr	320 gal/hr	6,035 hp	2.9 g/kW-h	Design Spec	b	28.8 lb/hr	9.70 tpy	0.024 lb/hp-hr	AP-42 Table 3.4-1	b	144.8 lb/hr	48.9 tpy	d	**80.1**
	Main Engine 4	675 hr/yr	320 gal/hr	6,035 hp	2.9 g/kW-h	Design Spec	b	28.8 lb/hr	9.70 tpy	0.024 lb/hp-hr	AP-42 Table 3.4-1	b	144.8 lb/hr	48.9 tpy	d	**80.1**
								Total	**45.3 tpy**				**Total**	**228.1 tpy**		

1 1.341 hp/kW; 454g/lb; Break Specific Fuel Consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1).
2 Ultra Low Sulfur Diesel #1 (ULSD): Fuel Heat Content of 132,096 Btu/gal; Density of 0.8094 kg/L; so 6.74 lbs/gal diesel is assumed (Tesoro/Kenai Refinery).
3 Fuel Consumption has been calculated from Power Output where not available from manufacturer specifications.
4 An equivalent of two main drilling engines at 100% load will operate continuously for up to 4800 hours per season. All four main drilling engines will operate at 100% load for up to 48 hours per season.
5 It is assumed that brake horse power (bhp) is approximately equal to horse power (hp).
6 All drill rig main engines and all ice breaker engines use SCR emission controls.
7 Emissions (tons) = Hourly Emission Rate (lb/hr) x Allowable Operation (hr/yr) x (1 ton/2000 lb).

Note
a Hourly Emission Rate (lb/hr) = Emission Factor (g/kWh) x Max Output Capacity (kW) x (1 lb/454 g)
b Hourly Emission Rate (lb/hr) = Emission Factor (g/kWh) x Max Output Capacity (hp) x (1 lb/454 g) x (1 kW/1.3405 hp)
c Hourly Emission Rate (lb/hr) = Emission Factor (lb/MMBtu) x Max Output Capacity (hp) x Fuel Consumption Rate (7,000 Btu/hp-h)
d NOx Control Efficiency (%) = [Uncontrolled NOx Emissions (tons) - Controlled NOx Emissions (tons)]÷ [Uncontrolled Nox Emissions (tons)] x 100%

Devil's Paw Prospect - HAPs Proposed Allowable Annual Emissions Inventory

Emission Unit Description	Type	Mode	Location	Fuel Type	Allowable Operation	Fuel Consumption	Power Output
Drill Rig Equipment							
Main Drill Rig Engine 1	Wärtsilä 8L26A2	Drilling mode	Maersk Resolute	ULSD	1,195 hr/yr	205.8 g/kWh	2480 kW
Main Drill Rig Engine 1	Wärtsilä 8L26A2	Preload	Maersk Resolute	ULSD	10 hr/yr	217 g/kWh	1249 kW
Main Drill Rig Engine 1	Wärtsilä 8L26A2	Preload Hold & Discharge	Maersk Resolute	ULSD	6 hr/yr	358 g/kWh	256 kW
Main Drill Rig Engine 1	Wärtsilä 8L26A2	Jackup to Final Air Gap	Maersk Resolute	ULSD	1.50 hr/yr	221 g/kWh	999 kW
Main Drill Rig Engine 1	Wärtsilä 8L26A2	Prepare for Drilling	Maersk Resolute	ULSD	12 hr/yr	205.8 g/kWh	2480 kW
Main Drill Rig Engine 2	Wärtsilä 8L26A2	Drilling mode	Maersk Resolute	ULSD	1,195 hr/yr	205.8 g/kWh	2480 kW
Main Drill Rig Engine 2	Wärtsilä 8L26A2	Preload	Maersk Resolute	ULSD	10 hr/yr	217 g/kWh	1249 kW
Main Drill Rig Engine 2	Wärtsilä 8L26A2	Preload Hold & Discharge	Maersk Resolute	ULSD	6 hr/yr	358 g/kWh	256 kW
Main Drill Rig Engine 2	Wärtsilä 8L26A2	Jackup to Final Air Gap	Maersk Resolute	ULSD	1.50 hr/yr	221 g/kWh	999 kW
Main Drill Rig Engine 3	Wärtsilä 8L26A3	Prepare for Drilling	Maersk Resolute	ULSD	12 hr/yr	205.8 g/kWh	2480 kW
Main Drill Rig Engine 3	Wärtsilä 8L26A2	Drilling mode	Maersk Resolute	ULSD	1,195 hr/yr	205.8 g/kWh	2480 kW
Main Drill Rig Engine 3	Wärtsilä 8L26A2	Preload	Maersk Resolute	ULSD	10 hr/yr	358 g/kWh	256 kW
Main Drill Rig Engine 3	Wärtsilä 8L26A2	Preload Hold & Discharge	Maersk Resolute	ULSD	6 hr/yr	358 g/kWh	256 kW
Main Drill Rig Engine 3	Wärtsilä 8L26A2	Jackup to Final Air Gap	Maersk Resolute	ULSD	1.50 hr/yr	221 g/kWh	999 kW
Main Drill Rig Engine 4	Wärtsilä 8L26A2	Drilling mode	Maersk Resolute	ULSD	1,195 hr/yr	205.8 g/kWh	2480 kW
Emergency Back-up Engine	Caterpillar Diesel 3508 B	Drilling mode	Maersk Resolute	ULSD	75 hr/yr	205 g/kWh	968 kW
Cement Engine 1	Caterpillar 15 DITA	Drilling mode	Maersk Resolute	ULSD	131 hr/yr	29 gal/hr	403 kW
Cement Engine 2	Caterpillar 15 DITA	Drilling mode	Maersk Resolute	ULSD	131 hr/yr	29 gal/hr	403 kW
Logging Winch	Caterpillar C7 Acert Engine	Drilling mode	Maersk Resolute	ULSD	273 hr/yr	13 gal/hr	187 kW
Heater 1	To be determined	Drilling mode	Maersk Resolute	ULSD	2,400 hr/yr	26 gal/hr	3.5 MMBtu/hr*
Heater 2	To be determined	Drilling mode	Maersk Resolute	ULSD	2,400 hr/yr	26 gal/hr	3.5 MMBtu/hr*
Incinerator	To be determined	Drilling mode	Maersk Resolute	Waste	65 tons/yr	276 lbs/hr	N A
Fuel Tank 1	71,000 gallons	Drilling mode	Maersk Resolute	ULSD	2,400 hrs/yr	473,575 gal/yr**	N A
Fuel Tank 2	71,000 gallons	Drilling mode	Maersk Resolute	ULSD	2,400 hrs/yr	473,575 gal/yr**	N A
Mud Degassing	Water Based Mud & Cuttings	Drilling mode	Maersk Resolute	Well Gas	100 days/yr	NA	20000 scf/day

**Max throughput *Heat input rate

Ice Breaker 1		**675 hours cruising**					
Main Engine 1	Wärtsilä Vasa 16V32/6000kW	Cruising	Nordica	ULSD	675 hr/yr	426 gal/hr	8046 hp
Main Engine 2	Wärtsilä Vasa 16V32/6000kW	Cruising	Nordica	ULSD	675 hr/yr	426 gal/hr	8046 hp
Main Engine 3	Wärtsilä Vasa 12V32/4500 kW	Cruising	Nordica	ULSD	675 hr/yr	320 gal/hr	6035 hp
Main Engine 4	Wärtsilä Vasa 12V32/4500 kW	Cruising	Nordica	ULSD	675 hr/yr	320 gal/hr	6035 hp
Harbor Generator	Wärtsilä Vasa 4R22 - 710kW	Cruising	Nordica	ULSD	8 hr/yr	50 gal/hr	952 hp
Emergency Generator	Caterpillar 3412 - 300kW	Cruising	Nordica	ULSD	8 hr/yr	21 gal/hr	402 hp
Boiler 1	Aquamaster Rauma Unex BH-2000	Cruising	Nordica	ULSD	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*
Boiler 2	Aquamaster Rauma Unex BH-2000	Cruising	Nordica	ULSD	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*
Incinerator	Aquamaster Rauma Unex BH-2000	Cruising	Nordica	Waste	675 hr/yr	175 lb/hr	N A

*Heat input rate

Devil's Paw Prospect - HAPs Proposed Allowable Annual Emissions Inventory

Emission Unit Description	Type	Mode	Location	Fuel Type	Allowable Operation	Fuel Consumption	Power Output
Ice Breaker 2		**675 hours cruising**					
Main Engine 1	Wärtsilä Vasa 16V32/6000kW	Cruising	Fennica	ULSD	675 hr/yr	426 gal/hr	8046 hp
Main Engine 2	Wärtsilä Vasa 16V32/6000kW	Cruising	Fennica	ULSD	675 hr/yr	426 gal/hr	8046 hp
Main Engine 3	Wärtsilä Vasa 12V32/4500 kW	Cruising	Fennica	ULSD	675 hr/yr	320 gal/hr	6035 hp
Main Engine 4	Wärtsilä Vasa 12V32/4500 kW	Cruising	Fennica	ULSD	675 hr/yr	320 gal/hr	6035 hp
Harbor Generator	Wärtsilä Vasa 4R22 - 710kW	Cruising	Fennica	ULSD	8 hr/yr	50 gal/hr	952 hp
Emergency Generator	Caterpillar 3412 - 300kW	Cruising	Fennica	ULSD	8 hr/yr	21 gal/hr	402 hp
Boiler 1	Aquamaster Rauma Unex BH-2000	Cruising	Fennica	ULSD	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*
Boiler 2	Aquamaster Rauma Unex BH-2000	Cruising	Fennica	ULSD	675 hr/yr	28 gal/hr	3.7 MMBtu/hr*
Incinerator	Aquamaster Rauma Unex BH-2000	Cruising	Fennica	Waste	675 hr/yr	175 lb/hr	N A

*Heat input rate

Anchor Handler Tug Supply Vessel (AHTS)							
Main Engine 1	Caterpillar 3608	Cruising	SEACOR Reliant	ULSD	0.08 hr/yr	99 gal/hr	1400 kW
Main Engine 2	Caterpillar 3608	Cruising	SEACOR Reliant	ULSD	0.08 hr/yr	99 gal/hr	1400 kW
Main Engine 1	Caterpillar 3608	Mooring Assist	SEACOR Reliant	ULSD	9.0 hr/yr	71 gal/hr	1000 kW
Main Engine 2	Caterpillar 3608	Mooring Assist	SEACOR Reliant	ULSD	9.0 hr/yr	71 gal/hr	1000 kW
Tow Winch Engine	Caterpillar 3508	Mooring Assist	SEACOR Reliant	ULSD	9.0 hr/yr	11 gal/hr	150 kW
Thruster Engine 1	Caterpillar 3508	Mooring Assist	SEACOR Reliant	ULSD	9.0 hr/yr	27 gal/hr	375 kW
Thruster Engine 2	Caterpillar C-32	Mooring Assist	SEACOR Reliant	ULSD	9.0 hr/yr	27 gal/hr	375 kW
Generator 1	Caterpillar 3412	Anchored	SEACOR Reliant	ULSD	1,196 hr/yr	18 gal/hr	250 kW
Generator 1	Caterpillar 3412	Mooring Assist	SEACOR Reliant	ULSD	9.0 hr/yr	21 gal/hr	300 kW
Generator 1	Caterpillar 3412	Cruising	SEACOR Reliant	ULSD	0.08 hr/yr	18 gal/hr	250 kW
Generator 2	Caterpillar 3412	DP	SEACOR Reliant	ULSD	1,196 hr/yr	11 gal/hr	150 kW
Emergency Generator	Caterpillar 3306	Non-propulsion	SEACOR Reliant	ULSD	8 hr/yr	20 gal/hr	276 hp

Oil Spill Response Vessel 1 (Dedicated OSRV)		**Lays boom for rig refuels 18x and refuels AHTS 4x, Always within 25 miles of the rig**					
Main Engine 1	Caterpillar 3516C	Cruising	HOS Coral	ULSD	864 hr/yr	77.5 gal/hr	-- --
Main Engine 2	Caterpillar 3516C	Cruising	HOS Coral	ULSD	864 hr/yr	77.5 gal/hr	-- --
Thruster Engine 1	Brunvoll CPP Drop Down Azimuth	Laying Boom	HOS Coral	ULSD	36 hr/yr	11.6 gal/hr	1,100 hp
Thruster Engine 2	Brunvoll CPP Tunnel	Laying Boom	HOS Coral	ULSD	36 hr/yr	10.6 gal/hr	1,100 hp
Thruster Engine 3	Brunvoll CPP Tunnel (Stern)	Laying Boom	HOS Coral	ULSD	36 hr/yr	7.1 gal/hr	1,100 hp
Generator 1	Caterpillar C 32	Cruising/DP/Anchored	HOS Coral	ULSD	1,164 hr/yr	11.54 gal/hr	710 kW
Generator 1	Caterpillar C 32	Laying Boom	HOS Coral	ULSD	36 hr/yr	11.54 gal/hr	710 kW
Generator 2	Caterpillar C 32	Cruising/DP	HOS Coral	ULSD	1,164 hr/yr	11.54 gal/hr	710 kW
Generator 2	Caterpillar C 32	Laying Boom	HOS Coral	ULSD	36 hr/yr	11.54 gal/hr	710 kW
Emergency Generator	CAT C9D	Cruising/DP	HOS Coral	ULSD	8 hr/yr	15 gal/hr	279 hp

Devil's Paw Prospect - HAPs Proposed Allowable Annual Emissions Inventory

Emission Unit Description	Type	Mode	Location	Fuel Type	Allowable Operation	Fuel Consumption	Power Output
Oil Spill Response Vessel 2		**Only Within 25 Miles of Rig During Spill Response Exercises 48 hrs + 12 hrs travel time**					
Main Engine 1	Caterpillar 3516C	Cruising	HOS Coral	ULSD	60 hr/yr	77.5 gal/hr	-- --
Main Engine 2	Caterpillar 3516C	Cruising	HOS Coral	ULSD	60 hr/yr	77.5 gal/hr	-- --
Thruster Engine 1	Brunvoll CPP Drop Down Azimuth	Cruising	HOS Coral	ULSD	0 hr/yr	0 gal/hr	0 hp
Thruster Engine 2	Brunvoll CPP Tunnel	Cruising	HOS Coral	ULSD	0 hr/yr	0 gal/hr	0 hp
Thruster Engine 3	Brunvoll CPP Tunnel (Stern)	Cruising	HOS Coral	ULSD	0 hr/yr	0 gal/hr	0 hp
Generator 1	Caterpillar C 32	Cruising/DP	HOS Coral	ULSD	30 hr/yr	11.54 gal/hr	710 kW
Generator 2	Caterpillar C 32	Cruising/DP	HOS Coral	ULSD	30 hr/yr	11.54 gal/hr	710 kW
Emergency Generator	CAT C9D	Cruising/DP	HOS Coral	ULSD	8 hr/yr	15 gal/hr	279 hp
Offshore Supply Vessels (OSV1 & OSV2)		**Option 1: Resupplying Rig (63x a year)-Includes 18 Refuelling Trips**					
Main Engine 1	Caterpillar 3516C	Cruising	HOS Arrowhead	ULSD	378 hr/yr	74.5 gal/hr	-- --
Main Engine 1	Caterpillar 3516C	Idling	HOS Arrowhead	ULSD	133 hr/yr	67 gal/hr	-- --
Main Engine 2	Caterpillar 3516C	Cruising	HOS Arrowhead	ULSD	378 hr/yr	74.5 gal/hr	-- --
Main Engine 2	Caterpillar 3516C	Idling	HOS Arrowhead	ULSD	133 hr/yr	67 gal/hr	-- --
Thruster Engine 1	Caterpillar C32	DP	HOS Arrowhead	ULSD	756 hr/yr	45 gal/hr	950 bhp
Thruster Engine 2	Caterpillar C32	DP	HOS Arrowhead	ULSD	756 hr/yr	45 gal/hr	950 bhp
Thruster Engine 3	Caterpillar C32	DP	HOS Arrowhead	ULSD	756 hr/yr	45 gal/hr	950 bhp
Generator	Caterpillar C18	Cruising/DP/Idle	HOS Arrowhead	ULSD	634 hr/yr	27 gal/hr	400 kW
Generator	Caterpillar C18	Cruising/DP/Idle	HOS Arrowhead	ULSD	634 hr/yr	27 gal/hr	400 kW
Generator	Caterpillar C18	Cruising/DP/Idle	HOS Arrowhead	ULSD	- hr/yr	27 gal/hr	-- --
Emergency Generator	Caterpillar C4.4	Cruising/DP/Idle	HOS Arrowhead	ULSD	8 hr/yr	8 gal/hr	99 kW
Ware Vessel (WV) w/ OSV/AHTS backup		**Option 2: Resupplying Rig (60x a year)-Includes 18 Refuelling Trips**					
Main Engine 1	Caterpillar 3516C	Cruising	HOS Strongline	ULSD	360 hr/yr	87 gal/hr	-- hp
Main Engine 2	Caterpillar 3516C	Cruising	HOS Strongline	ULSD	360 hr/yr	87 gal/hr	-- hp
Main Engine 3	Caterpillar 3516C	DP/Idling	HOS Strongline	ULSD	820 hr/yr	81 gal/hr	-- hp
Main Engine 4	Caterpillar 3516C	DP/Idling	HOS Strongline	ULSD	820 hr/yr	81 gal/hr	-- hp
Generator 1	Caterpillar C18	Cruising/DP/Idling	HOS Strongline	ULSD	590 hr/yr	32 gal/hr	504 kW
Generator 2	Caterpillar C18	Cruising/DP/Idling	HOS Strongline	ULSD	590 hr/yr	32 gal/hr	504 kW
Generator 3	Caterpillar C18	Cruising/DP/Idling	HOS Strongline	ULSD	- hr/yr	32 gal/hr	504 kW
Emergency Generator	Caterpillar 3306	Cruising/DP/Idling	HOS Strongline	ULSD	8 hr/yr	12.8 gal/hr	170 kW
34' boom work boats - 4		**4 WBs up to 48 hr/yr for spill exercises**					
WB-1 Propulsion Engine 1	Cummins QSB5.9-305CD	Cruising	Kvichak #1	ULSD	48 hr/yr	15 gal/hr	300 hp
WB-1 Propulsion Engine 2	Cummins QSB5.9-305CD	Cruising	Kvichak #1	ULSD	48 hr/yr	15 gal/hr	300 hp
WB-2 Propulsion Engine 1	Cummins QSB5.9-305CD	Cruising	Kvichak #2	ULSD	48 hr/yr	15 gal/hr	300 hp
WB-2 Propulsion Engine 2	Cummins QSB5.9-305CD	Cruising	Kvichak #2	ULSD	48 hr/yr	15 gal/hr	300 hp
WB-3 Propulsion Engine 1	Cummins QSB5.9-305CD	Cruising	Kvichak #3	ULSD	48 hr/yr	15 gal/hr	300 hp
WB-3 Propulsion Engine 2	Cummins QSB5.9-305CD	Cruising	Kvichak #3	ULSD	48 hr/yr	15 gal/hr	300 hp
WB-4 Propulsion Engine 1	Cummins QSB5.9-305CD	Cruising	Kvichak #4	ULSD	48 hr/yr	15 gal/hr	300 hp
WB-4 Propulsion Engine 2	Cummins QSB5.9-305CD	Cruising	Kvichak #4	ULSD	48 hr/yr	15 gal/hr	300 hp

Devil's Paw Prospect - HAPs Proposed Allowable Annual Emissions Inventory

Emission Unit Description	Type	Mode	Location	Fuel Type	Allowable Operation	Fuel Consumption	Power Output
Marine Research Vessel		**600 hours per year within 25 Mile Zone**					
Main Engine	Caterpillar	Cruising	Norseman	ULSD	600 hr/yr	45 gal/hr	850 hp
Generator 1	Caterpillar	Cruising	Norseman	ULSD	600 hr/yr	10 gal/hr	135 kW
Generator 2	Caterpillar	Cruising	Norseman	ULSD	600 hr/yr	6 gal/hr	90 kW
Generator 3	Caterpillar	Cruising	Norseman	ULSD	600 hr/yr	3 gal/hr	40 kW
Spill Storage Tanker		**Cruises to 5 miles away (1.18 hours per trip each way) and Anchors for 48 hours for Spill Response Exercises**					
Main Engine 1	Aframax class sized	Cruising	Teekay	ULSD	5 hr/yr	1031 gal/hr	19,460 bhp
Generator 1	Aframax class sized	Anchored/Cruising	Teekay	ULSD	29 hr/yr	43 gal/hr	600 kW
Generator 2	Aframax class sized	Cruising	Teekay	ULSD	29 hr/yr	43 gal/hr	600 kW
Generator 3	Aframax class sized	Anchored	Teekay	ULSD	0 hr/yr	0 gal/hr	0 kW
Emergency Generator	Aframax class sized	Anchored	Teekay	ULSD	0 hr/yr	0 gal/hr	0 kW
Boiler 1	Mac-55B	Anchored/Cruising	Teekay	ULSD	53 hr/yr	4900 kg/hr	212 MMBtu/hr*
Boiler 2	Mac-55B	Anchored	Teekay	ULSD	0 hr/yr	0 kg/hr	0.00 MMBtu/hr*
							*Heat input rate
All Vessels Fuel Tanks							
Fuel Tank	100,000 gallons	NA	All Vessels	ULSD	2,400 hr/yr	2,880,158 gal/yr*	N A
							*Max throughput

Notes:

Seasonal drilling days= 100

1 1.3405 hp/kW; Brake Specific Fuel Consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1).
2 Ultra Low Sulfur Diesel #1 (ULSD): Fuel Heat Content of 132,096 Btu/gal; Density of 0.8094 kg/L; so 6.74 lbs/gal diesel is assumed (Tesoro/Kenai Refinery).
3 Incinerator Fuel Heat Content (Waste) of 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17). Incinerators will burn ULSD for ignition purposes only.
4 Max Fuel Usage has been calculated from Max Output Capacity where not available from manufacturer specifications (see calculations below).
5 An equivalent of two main drilling engines at 100% load will operate continuously for up to 4800 hours per season. All four main drilling engines will operate at 100% load for up to 48 hours per season.
6 Mud degassing rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig reservoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977).
7 OSRV cruising time includes laying & removing boom for rig fuel transfer activities (up to 6 times per year).
8 Drill Rig Incinerator Operating Hours (65 tons/season) = (840 ft^3 waste/wk) ÷ (27 ft^3/yd^3) x (14 wks/season) x (300 lbs/yd^3 (EPA factor)) ÷ (2,000 lb/ton).
9 OSV & Ware Vessel assume operation of up to 100 hrs/season for open water idling in the 25 mile zone, if weather delays off-loading.
10 Fifth work boat will be used to lay boom (during re-fueling) during spill exercises only if the OSRV is not used.
11 Incinerator AP-42 Table 2.1-12 emission factors are for Modular Excess Air Combustors.
12 EPA Ocean Vessel Guidance is "Emission Inventories for Ocean-Going Vessels Using Category 3 Propulsion Engines In or Near the United States" (EPA420-D-07-007, December, 2007) -Table 3-55 Marine Distillate Fuel.
13 EPA Ocean Vessel Guidance was used for engines less than 600 hp (448 kW) and all auxilliary engines. AP-42 Emission Factors were used for engines greater than 600 hp (448 kW).
14 It is assumed that brake horse power (bhp) ≈ horse power (hp).
15 Emissions (tons) = Hourly Emission Rate (lb/hr) x Allowable Operation (hr/yr) x (1 ton/2000 lb).

Calculations:

Max Fuel Usage (gal/hr) = Max Output Capacity (hp) x (7,000 Btu/hp-h) ÷ Fuel Heat Content (132,096 Btu/gal)
Max Fuel Usage (gal/hr) = Max Output Capacity (kW)x (1.3405 hp/kW) x Fuel Consumption Factor (7,000 Btu/hp-h) ÷ Fuel Heat Content (132,096 Btu/gal)

Devil's Paw Prospect - HAPs Proposed Allowable Annual Emissions Inventory - PTE Options Summary

Potential HAPs Emissions (tpy)	Option Description
3.08	Option 1 - Ware Barge/Tug and 2 OSV's
3.09	Option 2 - Ware Vessel (w/ backup OSV and OSV/AHTS)

Devil's Paw Prospect - Annual Emissions Inventory - HAPs

				Acetaldehyde							Acrolein						
Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																	
0 Main Drill Rig Engine 1	1195 hr/yr	205.8 g/kWh	2480 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	1.78E-02	lb/hr	1.07E-02	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	2.17E-03	lb/hr	1.30E-03	tpy
0 Main Drill Rig Engine 1	10 hr/yr	217.0 g/kWh	1249 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	9.48E-03	lb/hr	4.74E-05	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	1.15E-03	lb/hr	5.76E-06	tpy
0 Main Drill Rig Engine 1	6 hr/yr	358.0 g/kWh	256 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	3.20E-03	lb/hr	9.61E-06	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	3.89E-04	lb/hr	1.17E-06	tpy
0 Main Drill Rig Engine 1	1.5 hr/yr	221.0 g/kWh	999 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	7.72E-03	lb/hr	5.79E-06	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	9.38E-04	lb/hr	7.03E-07	tpy
0 Main Drill Rig Engine 1	12 hr/yr	205.8 g/kWh	2480 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	1.78E-02	lb/hr	1.07E-04	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	2.17E-03	lb/hr	1.30E-05	tpy
0 Main Drill Rig Engine 2	1195 hr/yr	205.8 g/kWh	2480 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	1.78E-02	lb/hr	1.07E-02	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	2.17E-03	lb/hr	1.30E-03	tpy
0 Main Drill Rig Engine 2	10 hr/yr	217.0 g/kWh	1249 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	9.48E-03	lb/hr	4.74E-05	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	1.15E-03	lb/hr	5.76E-06	tpy
0 Main Drill Rig Engine 2	6 hr/yr	358.0 g/kWh	256 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	3.20E-03	lb/hr	9.61E-06	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	3.89E-04	lb/hr	1.17E-06	tpy
0 Main Drill Rig Engine 2	1.5 hr/yr	221.0 g/kWh	999 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	7.72E-03	lb/hr	5.79E-06	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	9.38E-04	lb/hr	7.03E-07	tpy
0 Main Drill Rig Engine 3	12 hr/yr	205.8 g/kWh	2480 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	1.78E-02	lb/hr	1.07E-04	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	2.17E-03	lb/hr	1.30E-05	tpy
0 Main Drill Rig Engine 3	1195 hr/yr	205.8 g/kWh	2480 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	1.78E-02	lb/hr	1.07E-02	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	2.17E-03	lb/hr	1.30E-03	tpy
0 Main Drill Rig Engine 3	10 hr/yr	358.0 g/kWh	256 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	3.20E-03	lb/hr	1.60E-05	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	3.89E-04	lb/hr	1.95E-06	tpy
0 Main Drill Rig Engine 3	6 hr/yr	358.0 g/kWh	256 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	3.20E-03	lb/hr	9.61E-06	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	3.89E-04	lb/hr	1.17E-06	tpy
0 Main Drill Rig Engine 3	1.5 hr/yr	221.0 g/kWh	999 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	7.72E-03	lb/hr	5.79E-06	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	9.38E-04	lb/hr	7.03E-07	tpy
0 Main Drill Rig Engine 4	1195 hr/yr	205.8 g/kWh	2480 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	1.78E-02	lb/hr	1.07E-02	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	2.17E-03	lb/hr	1.30E-03	tpy
0 Emergency Back-up Engine	75 hr/yr	205.0 g/kWh	968 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	6.94E-03	lb/hr	2.60E-04	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	8.43E-04	lb/hr	3.16E-05	tpy
0 Cement Engine 1	131 hr/yr	29.0 gal/hr	403 kW	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.94E-03	lb/hr	1.92E-04	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.54E-04	lb/hr	2.32E-05	tpy
0 Cement Engine 2	131 hr/yr	29.0 gal/hr	403 kW	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.94E-03	lb/hr	1.92E-04	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.54E-04	lb/hr	2.32E-05	tpy
0 Logging Winch	273 hr/yr	13.3 gal/hr	187 kW	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.35E-03	lb/hr	1.84E-04	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.62E-04	lb/hr	2.22E-05	tpy
0 Heater 1	2400 hr/yr	26.5 gal/hr	4	MMBtu/hr*	2.65E+03	lb/10^12 Btu	VCAPCD	9.29E-03	lb/hr	1.11E-02	tpy	2.65E+03	lb/10^12 Btu	VCAPCD	9.29E-03	lb/hr	1.11E-02	tpy
0 Heater 2	2400 hr/yr	26.5 gal/hr	4	MMBtu/hr*	2.65E+03	lb/10^12 Btu	VCAPCD	9.29E-03	lb/hr	1.11E-02	tpy	2.65E+03	lb/10^12 Btu	VCAPCD	9.29E-03	lb/hr	1.11E-02	tpy
0 Incinerator	65 tons/yr	276.0 lbs/hr	N	A	none							none					
0 Fuel Tank 1	2400 hrs/yr	473574.8 gal/yr**	N	A	none							none					
0 Fuel Tank 2	2400 hrs/yr	473574.8 gal/yr**	N	A	none							none					
0 Mud Degassing	100 days/yr	NA 0	20000	scf/day	none							none					
			*Heat input rate			Drill Rig Total	1.95E-01	lb/hr	6.61E-02	tpy			Drill Rig Total	4.00E-02	lb/hr	2.76E-02	tpy
Ice Breaker 1																	
0 Main Engine 1	675 hr/yr	426.4 gal/hr	8046	hp	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	4.56E-02	lb/hr	1.54E-02	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	5.54E-03	lb/hr	1.87E-03	tpy
0 Main Engine 2	675 hr/yr	426.4 gal/hr	8046	hp	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	4.56E-02	lb/hr	1.54E-02	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	5.54E-03	lb/hr	1.87E-03	tpy
0 Main Engine 3	675 hr/yr	319.8 gal/hr	6035	hp	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	3.42E-02	lb/hr	1.15E-02	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	4.16E-03	lb/hr	1.40E-03	tpy
0 Main Engine 4	675 hr/yr	319.8 gal/hr	6035	hp	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	3.42E-02	lb/hr	1.15E-02	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	4.16E-03	lb/hr	1.40E-03	tpy
0 Harbor Generator	8 hr/yr	50.5 gal/hr	952	hp	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	5.40E-03	lb/hr	2.16E-05	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	6.56E-04	lb/hr	2.62E-06	tpy
0 Emergency Generator	8 hr/yr	21.3 gal/hr	402	hp	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.16E-03	lb/hr	8.64E-06	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	2.60E-04	lb/hr	1.04E-06	tpy
0 Boiler 1	675 hr/yr	28.0 gal/hr	4	MMBtu/hr*	2.65E+03	lb/10^12 Btu	VCAPCD	9.82E-03	lb/hr	3.31E-03	tpy	2.65E+03	lb/10^12 Btu	VCAPCD	9.82E-03	lb/hr	3.31E-03	tpy
0 Boiler 2	675 hr/yr	28.0 gal/hr	4	MMBtu/hr*	2.65E+03	lb/10^12 Btu	VCAPCD	9.82E-03	lb/hr	3.31E-03	tpy	2.65E+03	lb/10^12 Btu	VCAPCD	9.82E-03	lb/hr	3.31E-03	tpy
0 Incinerator	675 hr/yr	175.0 lb/hr	N	A	none							none					
			*Heat input rate			Vessel Total	1.87E-01	lb/hr	6.05E-02	tpy			Vessel Total	3.99E-02	lb/hr	1.32E-02	tpy
Ice Breaker 2																	
0 Main Engine 1	675 hr/yr	426.4 gal/hr	8046	hp	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	4.56E-02	lb/hr	1.54E-02	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	5.54E-03	lb/hr	1.87E-03	tpy
0 Main Engine 2	675 hr/yr	426.4 gal/hr	8046	hp	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	4.56E-02	lb/hr	1.54E-02	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	5.54E-03	lb/hr	1.87E-03	tpy
0 Main Engine 3	675 hr/yr	319.8 gal/hr	6035	hp	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	3.42E-02	lb/hr	1.15E-02	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	4.16E-03	lb/hr	1.40E-03	tpy
0 Main Engine 4	675 hr/yr	319.8 gal/hr	6035	hp	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	3.42E-02	lb/hr	1.15E-02	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	4.16E-03	lb/hr	1.40E-03	tpy
0 Harbor Generator	8 hr/yr	50.5 gal/hr	952	hp	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	5.40E-03	lb/hr	2.16E-05	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	6.56E-04	lb/hr	2.62E-06	tpy
0 Emergency Generator	8 hr/yr	21.3 gal/hr	402	hp	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.16E-03	lb/hr	8.64E-06	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	2.60E-04	lb/hr	1.04E-06	tpy
0 Boiler 1	675 hr/yr	28.0 gal/hr	4	MMBtu/hr*	2.65E+03	lb/10^12 Btu	VCAPCD	9.82E-03	lb/hr	3.31E-03	tpy	2.65E+03	lb/10^12 Btu	VCAPCD	9.82E-03	lb/hr	3.31E-03	tpy
0 Boiler 2	675 hr/yr	28.0 gal/hr	4	MMBtu/hr*	2.65E+03	lb/10^12 Btu	VCAPCD	9.82E-03	lb/hr	3.31E-03	tpy	2.65E+03	lb/10^12 Btu	VCAPCD	9.82E-03	lb/hr	3.31E-03	tpy
0 Incinerator	675 hr/yr	175.0 lb/hr	N	A	none							none					
			*Heat input rate			Vessel Total	1.87E-01	lb/hr	6.05E-02	tpy			Vessel Total	3.99E-02	lb/hr	1.32E-02	tpy

Devil's Paw Prospect - Annual Emissions Inventory - HAPs

					Benzene							1,3-Butadiene						
	Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
	Drill Rig Equipment																	
0	Main Drill Rig Engine 1	1195 hr/yr	205.8 g/kWh	2480 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.71E-02	lb/hr	1.02E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	9.02E-04	lb/hr	5.39E-04	tpy
0	Main Drill Rig Engine 1	10 hr/yr	217.0 g/kWh	1249 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	9.08E-03	lb/hr	4.54E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.79E-04	lb/hr	2.40E-06	tpy
0	Main Drill Rig Engine 1	6 hr/yr	358.0 g/kWh	256 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.07E-03	lb/hr	9.21E-06	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.62E-04	lb/hr	4.86E-07	tpy
0	Main Drill Rig Engine 1	1.5 hr/yr	221.0 g/kWh	999 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	7.40E-03	lb/hr	5.55E-06	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.90E-04	lb/hr	2.93E-07	tpy
0	Main Drill Rig Engine 1	12 hr/yr	205.8 g/kWh	2480 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.71E-02	lb/hr	1.03E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	9.02E-04	lb/hr	5.41E-06	tpy
0	Main Drill Rig Engine 2	1195 hr/yr	205.8 g/kWh	2480 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.71E-02	lb/hr	1.02E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	9.02E-04	lb/hr	5.39E-04	tpy
0	Main Drill Rig Engine 2	10 hr/yr	217.0 g/kWh	1249 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	9.08E-03	lb/hr	4.54E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.79E-04	lb/hr	2.40E-06	tpy
0	Main Drill Rig Engine 2	6 hr/yr	358.0 g/kWh	256 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.07E-03	lb/hr	9.21E-06	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.62E-04	lb/hr	4.86E-07	tpy
0	Main Drill Rig Engine 2	1.5 hr/yr	221.0 g/kWh	999 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	7.40E-03	lb/hr	5.55E-06	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.90E-04	lb/hr	2.93E-07	tpy
0	Main Drill Rig Engine 3	12 hr/yr	205.8 g/kWh	2480 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.71E-02	lb/hr	1.03E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	9.02E-04	lb/hr	5.41E-06	tpy
0	Main Drill Rig Engine 3	1195 hr/yr	205.8 g/kWh	2480 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.71E-02	lb/hr	1.02E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	9.02E-04	lb/hr	5.39E-04	tpy
0	Main Drill Rig Engine 3	10 hr/yr	358.0 g/kWh	256 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.07E-03	lb/hr	1.54E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.62E-04	lb/hr	8.10E-07	tpy
0	Main Drill Rig Engine 3	6 hr/yr	358.0 g/kWh	256 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.07E-03	lb/hr	9.21E-06	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.62E-04	lb/hr	4.86E-07	tpy
0	Main Drill Rig Engine 3	1.5 hr/yr	221.0 g/kWh	999 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	7.40E-03	lb/hr	5.55E-06	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.90E-04	lb/hr	2.93E-07	tpy
0	Main Drill Rig Engine 4	1195 hr/yr	205.8 g/kWh	2480 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.71E-02	lb/hr	1.02E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	9.02E-04	lb/hr	5.39E-04	tpy
0	Emergency Back-up Engine	75 hr/yr	205.0 g/kWh	968 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	6.65E-03	lb/hr	2.49E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.51E-04	lb/hr	1.32E-05	tpy
0	Cement Engine 1	131 hr/yr	29.0 gal/hr	403 kW	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.57E-03	lb/hr	2.34E-04	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.50E-04	lb/hr	9.81E-06	tpy
0	Cement Engine 2	131 hr/yr	29.0 gal/hr	403 kW	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.57E-03	lb/hr	2.34E-04	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.50E-04	lb/hr	9.81E-06	tpy
0	Logging Winch	273 hr/yr	13.3 gal/hr	187 kW	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.64E-03	lb/hr	2.23E-04	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	6.86E-05	lb/hr	9.37E-06	tpy
0	Heater 1	2400 hr/yr	26.5 gal/hr	4	MMBtu/hr*	1.92E+01	lb/10^12 Btu	CARB-CATEF	6.73E-05	lb/hr	8.08E-05	tpy	1.12E+02	lb/10^12 Btu	VCAPCD	3.92E-04	lb/hr	4.71E-04	tpy
0	Heater 2	2400 hr/yr	26.5 gal/hr	4	MMBtu/hr*	1.92E+01	lb/10^12 Btu	CARB-CATEF	6.73E-05	lb/hr	8.08E-05	tpy	1.12E+02	lb/10^12 Btu	VCAPCD	3.92E-04	lb/hr	4.71E-04	tpy
0	Incinerator	65 tons/yr	276.0 lbs/hr	N	A	none						none						
0	Fuel Tank 1	2400 hrs/yr	473574.8 gal/yr**	N	A	N	A	EPA TANKS	4.17E-06	lb/hr	5.00E-06	tpy	none					
0	Fuel Tank 2	2400 hrs/yr	473574.8 gal/yr**	N	A	N	A	EPA TANKS	4.17E-06	lb/hr	5.00E-06	tpy	none					
0	Mud Degassing	100 days/yr	NA 0	20000	scf/day	none						none						
				*Heat input rate			Drill Rig Total	1.71E-01	lb/hr	4.23E-02	tpy			Drill Rig Total	9.69E-03	lb/hr	3.16E-03	tpy
	Ice Breaker 1																	
0	Main Engine 1	675 hr/yr	426.4 gal/hr	8046	hp	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.37E-02	lb/hr	1.48E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.31E-03	lb/hr	7.79E-04	tpy
0	Main Engine 2	675 hr/yr	426.4 gal/hr	8046	hp	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.37E-02	lb/hr	1.48E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.31E-03	lb/hr	7.79E-04	tpy
0	Main Engine 3	675 hr/yr	319.8 gal/hr	6035	hp	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.28E-02	lb/hr	1.11E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.73E-03	lb/hr	5.84E-04	tpy
0	Main Engine 4	675 hr/yr	319.8 gal/hr	6035	hp	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.28E-02	lb/hr	1.11E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.73E-03	lb/hr	5.84E-04	tpy
0	Harbor Generator	8 hr/yr	50.5 gal/hr	952	hp	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	5.17E-03	lb/hr	2.07E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.73E-04	lb/hr	1.09E-06	tpy
0	Emergency Generator	8 hr/yr	21.3 gal/hr	402	hp	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.63E-03	lb/hr	1.05E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.10E-04	lb/hr	4.40E-07	tpy
0	Boiler 1	675 hr/yr	28.0 gal/hr	4	MMBtu/hr*	1.92E+01	lb/10^12 Btu	CARB-CATEF	7.11E-05	lb/hr	2.40E-05	tpy	1.12E+02	lb/10^12 Btu	VCAPCD	4.14E-04	lb/hr	1.40E-04	tpy
0	Boiler 2	675 hr/yr	28.0 gal/hr	4	MMBtu/hr*	1.92E+01	lb/10^12 Btu	CARB-CATEF	7.11E-05	lb/hr	2.40E-05	tpy	1.12E+02	lb/10^12 Btu	VCAPCD	4.14E-04	lb/hr	1.40E-04	tpy
0	Incinerator	675 hr/yr	175.0 lb/hr	N	A	none						none						
				*Heat input rate			Vessel Total	1.61E-01	lb/hr	5.17E-02	tpy			Vessel Total	9.29E-03	lb/hr	3.01E-03	tpy
	Ice Breaker 2																	
0	Main Engine 1	675 hr/yr	426.4 gal/hr	8046	hp	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.37E-02	lb/hr	1.48E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.31E-03	lb/hr	7.79E-04	tpy
0	Main Engine 2	675 hr/yr	426.4 gal/hr	8046	hp	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.37E-02	lb/hr	1.48E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.31E-03	lb/hr	7.79E-04	tpy
0	Main Engine 3	675 hr/yr	319.8 gal/hr	6035	hp	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.28E-02	lb/hr	1.11E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.73E-03	lb/hr	5.84E-04	tpy
0	Main Engine 4	675 hr/yr	319.8 gal/hr	6035	hp	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.28E-02	lb/hr	1.11E-02	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.73E-03	lb/hr	5.84E-04	tpy
0	Harbor Generator	8 hr/yr	50.5 gal/hr	952	hp	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	5.17E-03	lb/hr	2.07E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.73E-04	lb/hr	1.09E-06	tpy
0	Emergency Generator	8 hr/yr	21.3 gal/hr	402	hp	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.63E-03	lb/hr	1.05E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.10E-04	lb/hr	4.40E-07	tpy
0	Boiler 1	675 hr/yr	28.0 gal/hr	4	MMBtu/hr*	1.92E+01	lb/10^12 Btu	CARB-CATEF	7.11E-05	lb/hr	2.40E-05	tpy	1.12E+02	lb/10^12 Btu	VCAPCD	4.14E-04	lb/hr	1.40E-04	tpy
0	Boiler 2	675 hr/yr	28.0 gal/hr	4	MMBtu/hr*	1.92E+01	lb/10^12 Btu	CARB-CATEF	7.11E-05	lb/hr	2.40E-05	tpy	1.12E+02	lb/10^12 Btu	VCAPCD	4.14E-04	lb/hr	1.40E-04	tpy
0	Incinerator	675 hr/yr	175.0 lb/hr	N	A	none						none						
				*Heat input rate			Vessel Total	1.61E-01	lb/hr	5.17E-02	tpy			Vessel Total	9.29E-03	lb/hr	3.01E-03	tpy

Devil's Paw Prospect - Annual Emissions Inventory - HAPs

Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Chlorobenzene							Ethylbenzene						
				Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																	
Main Drill Rig Engine 1	1195 hr/yr	205.8 g/kWh	2480 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.34E-05	lb/hr	1.99E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.82E-03	lb/hr	1.09E-03	tpy
Main Drill Rig Engine 1	10 hr/yr	217.0 g/kWh	1249 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.77E-05	lb/hr	8.86E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	9.65E-04	lb/hr	4.83E-06	tpy
Main Drill Rig Engine 1	6 hr/yr	358.0 g/kWh	256 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.99E-06	lb/hr	1.80E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.26E-04	lb/hr	9.79E-07	tpy
Main Drill Rig Engine 1	1.5 hr/yr	221.0 g/kWh	999 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.44E-05	lb/hr	1.08E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	7.86E-04	lb/hr	5.90E-07	tpy
Main Drill Rig Engine 1	12 hr/yr	205.8 g/kWh	2480 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.34E-05	lb/hr	2.00E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.82E-03	lb/hr	1.09E-05	tpy
Main Drill Rig Engine 2	1195 hr/yr	205.8 g/kWh	2480 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.34E-05	lb/hr	1.99E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.82E-03	lb/hr	1.09E-03	tpy
Main Drill Rig Engine 2	10 hr/yr	217.0 g/kWh	1249 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.77E-05	lb/hr	8.86E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	9.65E-04	lb/hr	4.83E-06	tpy
Main Drill Rig Engine 2	6 hr/yr	358.0 g/kWh	256 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.99E-06	lb/hr	1.80E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.26E-04	lb/hr	9.79E-07	tpy
Main Drill Rig Engine 2	1.5 hr/yr	221.0 g/kWh	999 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.44E-05	lb/hr	1.08E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	7.86E-04	lb/hr	5.90E-07	tpy
Main Drill Rig Engine 3	12 hr/yr	205.8 g/kWh	2480 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.34E-05	lb/hr	2.00E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.82E-03	lb/hr	1.09E-05	tpy
Main Drill Rig Engine 3	1195 hr/yr	205.8 g/kWh	2480 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.34E-05	lb/hr	1.99E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.82E-03	lb/hr	1.09E-03	tpy
Main Drill Rig Engine 3	10 hr/yr	358.0 g/kWh	256 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.99E-06	lb/hr	3.00E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.26E-04	lb/hr	1.63E-06	tpy
Main Drill Rig Engine 3	6 hr/yr	358.0 g/kWh	256 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.99E-06	lb/hr	1.80E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.26E-04	lb/hr	9.79E-07	tpy
Main Drill Rig Engine 3	1.5 hr/yr	221.0 g/kWh	999 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.44E-05	lb/hr	1.08E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	7.86E-04	lb/hr	5.90E-07	tpy
Main Drill Rig Engine 4	1195 hr/yr	205.8 g/kWh	2480 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.34E-05	lb/hr	1.99E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.82E-03	lb/hr	1.09E-03	tpy
Emergency Back-up Engine	75 hr/yr	205.0 g/kWh	968 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.30E-05	lb/hr	4.86E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	7.07E-04	lb/hr	2.65E-05	tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.80E-06	lb/hr	3.80E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.16E-04	lb/hr	2.07E-05	tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.80E-06	lb/hr	3.80E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.16E-04	lb/hr	2.07E-05	tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	2.66E-06	lb/hr	3.63E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.45E-04	lb/hr	1.98E-05	tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4 MMBtu/hr*	1.51E+00	lb/10^12 Btu	VCAPCD	5.30E-06	lb/hr	6.36E-06	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	3.95E-05	lb/hr	4.74E-05	tpy
Heater 2	2400 hr/yr	26.5 gal/hr	4 MMBtu/hr*	1.51E+00	lb/10^12 Btu	VCAPCD	5.30E-06	lb/hr	6.36E-06	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	3.95E-05	lb/hr	4.74E-05	tpy
Incinerator	65 tons/yr	276.0 lbs/hr	N A	none							none						
Fuel Tank 1	2400 hrs/yr	473574.8 gal/yr**	N A	none							N A		EPA TANKS	4.17E-06	lb/hr	5.00E-06	tpy
Fuel Tank 2	2400 hrs/yr	473574.8 gal/yr**	N A	none							N A		EPA TANKS	4.17E-06	lb/hr	5.00E-06	tpy
Mud Degassing	100 days/yr	NA 0	20000 scf/day	none							none						
			*Heat input rate			Drill Rig Total	3.41E-04	lb/hr	9.47E-05	tpy			Drill Rig Total	1.81E-02	lb/hr	4.57E-03	tpy
Ice Breaker 1																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	8.53E-05	lb/hr	2.88E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	4.65E-03	lb/hr	1.57E-03	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	8.53E-05	lb/hr	2.88E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	4.65E-03	lb/hr	1.57E-03	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.40E-05	lb/hr	2.16E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.49E-03	lb/hr	1.18E-03	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.40E-05	lb/hr	2.16E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.49E-03	lb/hr	1.18E-03	tpy
Harbor Generator	8 hr/yr	50.5 gal/hr	952 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.01E-05	lb/hr	4.04E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	5.50E-04	lb/hr	2.20E-06	tpy
Emergency Generator	8 hr/yr	21.3 gal/hr	402 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	4.26E-06	lb/hr	1.71E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.32E-04	lb/hr	9.29E-07	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	1.51E+00	lb/10^12 Btu	VCAPCD	5.60E-06	lb/hr	1.89E-06	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	4.17E-05	lb/hr	1.41E-05	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	1.51E+00	lb/10^12 Btu	VCAPCD	5.60E-06	lb/hr	1.89E-06	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	4.17E-05	lb/hr	1.41E-05	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N A	none							none						
			*Heat input rate			Vessel Total	3.24E-04	lb/hr	1.05E-04	tpy			Vessel Total	1.71E-02	lb/hr	5.52E-03	tpy
Ice Breaker 2																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	8.53E-05	lb/hr	2.88E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	4.65E-03	lb/hr	1.57E-03	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	8.53E-05	lb/hr	2.88E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	4.65E-03	lb/hr	1.57E-03	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.40E-05	lb/hr	2.16E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.49E-03	lb/hr	1.18E-03	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.40E-05	lb/hr	2.16E-05	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.49E-03	lb/hr	1.18E-03	tpy
Harbor Generator	8 hr/yr	50.5 gal/hr	952 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.01E-05	lb/hr	4.04E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	5.50E-04	lb/hr	2.20E-06	tpy
Emergency Generator	8 hr/yr	21.3 gal/hr	402 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	4.26E-06	lb/hr	1.71E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.32E-04	lb/hr	9.29E-07	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	1.51E+00	lb/10^12 Btu	VCAPCD	5.60E-06	lb/hr	1.89E-06	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	4.17E-05	lb/hr	1.41E-05	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	1.51E+00	lb/10^12 Btu	VCAPCD	5.60E-06	lb/hr	1.89E-06	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	4.17E-05	lb/hr	1.41E-05	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N A	none							none						
			*Heat input rate			Vessel Total	3.24E-04	lb/hr	1.05E-04	tpy			Vessel Total	1.71E-02	lb/hr	5.52E-03	tpy

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Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Formaldehyde							Hexane						
				Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																	
Main Drill Rig Engine 1	1195 hr/yr	205.8 g/kWh	2480 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.93E-02	lb/hr	1.16E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.49E-03	lb/hr	2.68E-03	tpy
Main Drill Rig Engine 1	10 hr/yr	217.0 g/kWh	1249 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.03E-02	lb/hr	5.14E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.38E-03	lb/hr	1.19E-05	tpy
Main Drill Rig Engine 1	6 hr/yr	358.0 g/kWh	256 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.47E-03	lb/hr	1.04E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.06E-04	lb/hr	2.42E-06	tpy
Main Drill Rig Engine 1	1.5 hr/yr	221.0 g/kWh	999 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	8.37E-03	lb/hr	6.28E-06	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.94E-03	lb/hr	1.46E-06	tpy
Main Drill Rig Engine 1	12 hr/yr	205.8 g/kWh	2480 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.93E-02	lb/hr	1.16E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.49E-03	lb/hr	2.69E-05	tpy
Main Drill Rig Engine 2	1195 hr/yr	205.8 g/kWh	2480 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.93E-02	lb/hr	1.16E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.49E-03	lb/hr	2.68E-03	tpy
Main Drill Rig Engine 2	10 hr/yr	217.0 g/kWh	1249 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.03E-02	lb/hr	5.14E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.38E-03	lb/hr	1.19E-05	tpy
Main Drill Rig Engine 2	6 hr/yr	358.0 g/kWh	256 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.47E-03	lb/hr	1.04E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.06E-04	lb/hr	2.42E-06	tpy
Main Drill Rig Engine 2	1.5 hr/yr	221.0 g/kWh	999 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	8.37E-03	lb/hr	6.28E-06	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.94E-03	lb/hr	1.46E-06	tpy
Main Drill Rig Engine 3	12 hr/yr	205.8 g/kWh	2480 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.93E-02	lb/hr	1.16E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.49E-03	lb/hr	2.69E-05	tpy
Main Drill Rig Engine 3	1195 hr/yr	205.8 g/kWh	2480 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.93E-02	lb/hr	1.16E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.49E-03	lb/hr	2.68E-03	tpy
Main Drill Rig Engine 3	10 hr/yr	358.0 g/kWh	256 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.47E-03	lb/hr	1.74E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.06E-04	lb/hr	4.03E-06	tpy
Main Drill Rig Engine 3	6 hr/yr	358.0 g/kWh	256 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.47E-03	lb/hr	1.04E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.06E-04	lb/hr	2.42E-06	tpy
Main Drill Rig Engine 3	1.5 hr/yr	221.0 g/kWh	999 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	8.37E-03	lb/hr	6.28E-06	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.94E-03	lb/hr	1.46E-06	tpy
Main Drill Rig Engine 4	1195 hr/yr	205.8 g/kWh	2480 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.93E-02	lb/hr	1.16E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.49E-03	lb/hr	2.68E-03	tpy
Emergency Back-up Engine	75 hr/yr	205.0 g/kWh	968 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	7.52E-03	lb/hr	2.82E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.74E-03	lb/hr	6.54E-05	tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 kW	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.52E-03	lb/hr	2.96E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.80E-04	lb/hr	5.11E-05	tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 kW	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.52E-03	lb/hr	2.96E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.80E-04	lb/hr	5.11E-05	tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187 kW	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	2.07E-03	lb/hr	2.83E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	3.57E-04	lb/hr	4.88E-05	tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4	MMBtu/hr*	3.49E-01	lbs/Mgal	CARB-CATEF	9.25E-03	lb/hr	1.11E-02	tpy	9.16E+00	lb/10^12 Btu	CARB-CATEF	3.21E-05	lb/hr	3.85E-05	tpy
Heater 2	2400 hr/yr	26.5 gal/hr	4	MMBtu/hr*	3.49E-01	lbs/Mgal	CARB-CATEF	9.25E-03	lb/hr	1.11E-02	tpy	9.16E+00	lb/10^12 Btu	CARB-CATEF	3.21E-05	lb/hr	3.85E-05	tpy
Incinerator	65 tons/yr	276.0 lbs/hr	N A	none							none						
Fuel Tank 1	2400 hrs/yr	473574.8 gal/yr**	N A	none							N A		EPA TANKS	0.00E+00	lb/hr	0.00E+00	tpy
Fuel Tank 2	2400 hrs/yr	473574.8 gal/yr**	N A	none							N A		EPA TANKS	0.00E+00	lb/hr	0.00E+00	tpy
Mud Degassing	100 days/yr	NA 0	20000	scf/day	none						none						
			*Heat input rate			Drill Rig Total	2.13E-01	lb/hr	7.00E-02	lb/hr			Drill Rig Total	4.45E-02	lb/hr	1.11E-02	tpy
Ice Breaker 1																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 hp	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	4.95E-02	lb/hr	1.67E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.15E-02	lb/hr	3.87E-03	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 hp	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	4.95E-02	lb/hr	1.67E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.15E-02	lb/hr	3.87E-03	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 hp	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.71E-02	lb/hr	1.25E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.60E-03	lb/hr	2.90E-03	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 hp	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.71E-02	lb/hr	1.25E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.60E-03	lb/hr	2.90E-03	tpy
Harbor Generator	8 hr/yr	50.5 gal/hr	952 hp	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	5.85E-03	lb/hr	2.34E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.36E-03	lb/hr	5.43E-06	tpy
Emergency Generator	8 hr/yr	21.3 gal/hr	402 hp	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	3.32E-03	lb/hr	1.33E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	5.73E-04	lb/hr	2.29E-06	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4	MMBtu/hr*	3.49E-01	lbs/Mgal	CARB-CATEF	9.77E-03	lb/hr	3.30E-03	tpy	9.16E+00	lb/10^12 Btu	CARB-CATEF	3.39E-05	lb/hr	1.14E-05	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4	MMBtu/hr*	3.49E-01	lbs/Mgal	CARB-CATEF	9.77E-03	lb/hr	3.30E-03	tpy	9.16E+00	lb/10^12 Btu	CARB-CATEF	3.39E-05	lb/hr	1.14E-05	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N A	none							none						
			*Heat input rate			Vessel Total	2.02E-01	lb/hr	6.51E-02	tpy			Vessel Total	4.21E-02	lb/hr	1.36E-02	tpy
Ice Breaker 2																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 hp	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	4.95E-02	lb/hr	1.67E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.15E-02	lb/hr	3.87E-03	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 hp	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	4.95E-02	lb/hr	1.67E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.15E-02	lb/hr	3.87E-03	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 hp	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.71E-02	lb/hr	1.25E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.60E-03	lb/hr	2.90E-03	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 hp	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.71E-02	lb/hr	1.25E-02	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.60E-03	lb/hr	2.90E-03	tpy
Harbor Generator	8 hr/yr	50.5 gal/hr	952 hp	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	5.85E-03	lb/hr	2.34E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.36E-03	lb/hr	5.43E-06	tpy
Emergency Generator	8 hr/yr	21.3 gal/hr	402 hp	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	3.32E-03	lb/hr	1.33E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	5.73E-04	lb/hr	2.29E-06	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4	MMBtu/hr*	3.49E-01	lbs/Mgal	CARB-CATEF	9.77E-03	lb/hr	3.30E-03	tpy	9.16E+00	lb/10^12 Btu	CARB-CATEF	3.39E-05	lb/hr	1.14E-05	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4	MMBtu/hr*	3.49E-01	lbs/Mgal	CARB-CATEF	9.77E-03	lb/hr	3.30E-03	tpy	9.16E+00	lb/10^12 Btu	CARB-CATEF	3.39E-05	lb/hr	1.14E-05	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N A	none							none						
			*Heat input rate			Vessel Total	2.02E-01	lb/hr	6.51E-02	tpy			Vessel Total	4.21E-02	lb/hr	1.36E-02	tpy

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					Hydrochloric acid (Hydrogen Chloride)							Naphthalene						
Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																		
Main Drill Rig Engine 1	1195 hr/yr	205.8 g/kWh	2480	kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	3.11E-02	lb/hr	1.86E-02	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.86E-03	lb/hr	1.71E-03	tpy
Main Drill Rig Engine 1	10 hr/yr	217.0 g/kWh	1249	kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.65E-02	lb/hr	8.25E-05	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.52E-03	lb/hr	7.61E-06	tpy
Main Drill Rig Engine 1	6 hr/yr	358.0 g/kWh	256	kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.58E-03	lb/hr	1.67E-05	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	5.14E-04	lb/hr	1.54E-06	tpy
Main Drill Rig Engine 1	1.5 hr/yr	221.0 g/kWh	999	kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.34E-02	lb/hr	1.01E-05	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.24E-03	lb/hr	9.29E-07	tpy
Main Drill Rig Engine 1	12 hr/yr	205.8 g/kWh	2480	kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	3.11E-02	lb/hr	1.86E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.86E-03	lb/hr	1.72E-05	tpy
Main Drill Rig Engine 2	1195 hr/yr	205.8 g/kWh	2480	kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	3.11E-02	lb/hr	1.86E-02	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.86E-03	lb/hr	1.71E-03	tpy
Main Drill Rig Engine 2	10 hr/yr	217.0 g/kWh	1249	kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.65E-02	lb/hr	8.25E-05	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.52E-03	lb/hr	7.61E-06	tpy
Main Drill Rig Engine 2	6 hr/yr	358.0 g/kWh	256	kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.58E-03	lb/hr	1.67E-05	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	5.14E-04	lb/hr	1.54E-06	tpy
Main Drill Rig Engine 2	1.5 hr/yr	221.0 g/kWh	999	kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.34E-02	lb/hr	1.01E-05	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.24E-03	lb/hr	9.29E-07	tpy
Main Drill Rig Engine 3	12 hr/yr	205.8 g/kWh	2480	kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	3.11E-02	lb/hr	1.86E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.86E-03	lb/hr	1.72E-05	tpy
Main Drill Rig Engine 3	1195 hr/yr	205.8 g/kWh	2480	kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	3.11E-02	lb/hr	1.86E-02	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.86E-03	lb/hr	1.71E-03	tpy
Main Drill Rig Engine 3	10 hr/yr	358.0 g/kWh	256	kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.58E-03	lb/hr	2.79E-05	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	5.14E-04	lb/hr	2.57E-06	tpy
Main Drill Rig Engine 3	6 hr/yr	358.0 g/kWh	256	kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.58E-03	lb/hr	1.67E-05	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	5.14E-04	lb/hr	1.54E-06	tpy
Main Drill Rig Engine 3	1.5 hr/yr	221.0 g/kWh	999	kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.34E-02	lb/hr	1.01E-05	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.24E-03	lb/hr	9.29E-07	tpy
Main Drill Rig Engine 4	1195 hr/yr	205.8 g/kWh	2480	kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	3.11E-02	lb/hr	1.86E-02	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.86E-03	lb/hr	1.71E-03	tpy
Emergency Back-up Engine	75 hr/yr	205.0 g/kWh	968	kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.21E-02	lb/hr	4.53E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.11E-03	lb/hr	4.18E-05	tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403	kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.40E-03	lb/hr	3.54E-04	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.25E-04	lb/hr	2.13E-05	tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403	kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.40E-03	lb/hr	3.54E-04	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.25E-04	lb/hr	2.13E-05	tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187	kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	2.47E-03	lb/hr	3.38E-04	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.49E-04	lb/hr	2.03E-05	tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4	MMBtu/hr*	1.41E+03	lb/10^12 Btu	VCAPCD	4.94E-03	lb/hr	5.92E-03	tpy	2.78E+03	lb/10^12 Btu	CARB-CATEF	9.72E-03	lb/hr	1.17E-02	tpy
Heater 2	2400 hr/yr	26.5 gal/hr	4	MMBtu/hr*	1.41E+03	lb/10^12 Btu	VCAPCD	4.94E-03	lb/hr	5.92E-03	tpy	2.78E+03	lb/10^12 Btu	CARB-CATEF	9.72E-03	lb/hr	1.17E-02	tpy
Incinerator	65 tons/yr	276.0 lbs/hr	N	A	6.40E+00	lb/ton	AP-42 2.1-2	8.83E-01	lb/hr	2.09E-01	tpy	none						
Fuel Tank 1	2400 hrs/yr	473574.8 gal/yr**	N	A	none							none						
Fuel Tank 2	2400 hrs/yr	473574.8 gal/yr**	N	A	none							none						
Mud Degassing	100 days/yr	NA 0	20000	scf/day	none							none						
			*Heat input rate				Drill Rig Total	1.20E+00	lb/hr	2.97E-01	tpy			Drill Rig Total	4.74E-02	lb/hr	3.03E-02	tpy
Ice Breaker 1																		
Main Engine 1	675 hr/yr	426.4 gal/hr	8046	hp	1.41E-03	lb/MMBtu fuel input	VCAPCD	7.94E-02	lb/hr	2.68E-02	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	7.32E-03	lb/hr	2.47E-03	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046	hp	1.41E-03	lb/MMBtu fuel input	VCAPCD	7.94E-02	lb/hr	2.68E-02	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	7.32E-03	lb/hr	2.47E-03	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035	hp	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.96E-02	lb/hr	2.01E-02	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	5.49E-03	lb/hr	1.85E-03	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035	hp	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.96E-02	lb/hr	2.01E-02	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	5.49E-03	lb/hr	1.85E-03	tpy
Harbor Generator	8 hr/yr	50.5 gal/hr	952	hp	1.41E-03	lb/MMBtu fuel input	VCAPCD	9.40E-03	lb/hr	3.76E-05	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.66E-04	lb/hr	3.47E-06	tpy
Emergency Generator	8 hr/yr	21.3 gal/hr	402	hp	1.41E-03	lb/MMBtu fuel input	VCAPCD	3.97E-03	lb/hr	1.59E-05	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	2.39E-04	lb/hr	9.55E-07	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4	MMBtu/hr*	1.41E+03	lb/10^12 Btu	VCAPCD	5.22E-03	lb/hr	1.76E-03	tpy	2.78E+03	lb/10^12 Btu	CARB-CATEF	1.03E-02	lb/hr	3.47E-03	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4	MMBtu/hr*	1.41E+03	lb/10^12 Btu	VCAPCD	5.22E-03	lb/hr	1.76E-03	tpy	2.78E+03	lb/10^12 Btu	CARB-CATEF	1.03E-02	lb/hr	3.47E-03	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N	A	6.40E+00	lb/ton	AP-42 2.1-2	5.60E-01	lb/hr	1.89E-01	tpy	none						
			*Heat input rate				Vessel Total	8.62E-01	lb/hr	2.86E-01	tpy			Vessel Total	4.73E-02	lb/hr	1.56E-02	tpy
Ice Breaker 2																		
Main Engine 1	675 hr/yr	426.4 gal/hr	8046	hp	1.41E-03	lb/MMBtu fuel input	VCAPCD	7.94E-02	lb/hr	2.68E-02	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	7.32E-03	lb/hr	2.47E-03	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046	hp	1.41E-03	lb/MMBtu fuel input	VCAPCD	7.94E-02	lb/hr	2.68E-02	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	7.32E-03	lb/hr	2.47E-03	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035	hp	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.96E-02	lb/hr	2.01E-02	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	5.49E-03	lb/hr	1.85E-03	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035	hp	1.41E-03	lb/MMBtu fuel input	VCAPCD	5.96E-02	lb/hr	2.01E-02	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	5.49E-03	lb/hr	1.85E-03	tpy
Harbor Generator	8 hr/yr	50.5 gal/hr	952	hp	1.41E-03	lb/MMBtu fuel input	VCAPCD	9.40E-03	lb/hr	3.76E-05	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.66E-04	lb/hr	3.47E-06	tpy
Emergency Generator	8 hr/yr	21.3 gal/hr	402	hp	1.41E-03	lb/MMBtu fuel input	VCAPCD	3.97E-03	lb/hr	1.59E-05	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	2.39E-04	lb/hr	9.55E-07	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4	MMBtu/hr*	1.41E+03	lb/10^12 Btu	VCAPCD	5.22E-03	lb/hr	1.76E-03	tpy	2.78E+03	lb/10^12 Btu	CARB-CATEF	1.03E-02	lb/hr	3.47E-03	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4	MMBtu/hr*	1.41E+03	lb/10^12 Btu	VCAPCD	5.22E-03	lb/hr	1.76E-03	tpy	2.78E+03	lb/10^12 Btu	CARB-CATEF	1.03E-02	lb/hr	3.47E-03	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N	A	6.40E+00	lb/ton	AP-42 2.1-2	5.60E-01	lb/hr	1.89E-01	tpy	none						
			*Heat input rate				Vessel Total	8.62E-01	lb/hr	2.86E-01	tpy			Vessel Total	4.73E-02	lb/hr	1.56E-02	tpy

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Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Toluene							Xylenes (mixed isomers)						
				Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																	
Main Drill Rig Engine 1	1195 hr/yr	205.8 g/kWh	2480 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	6.19E-03	lb/hr	3.70E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.25E-03	lb/hr	2.54E-03	tpy
Main Drill Rig Engine 1	10 hr/yr	217.0 g/kWh	1249 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.29E-03	lb/hr	1.64E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.26E-03	lb/hr	1.13E-05	tpy
Main Drill Rig Engine 1	6 hr/yr	358.0 g/kWh	256 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.11E-03	lb/hr	3.34E-06	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	7.64E-04	lb/hr	2.29E-06	tpy
Main Drill Rig Engine 1	1.5 hr/yr	221.0 g/kWh	999 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.68E-03	lb/hr	2.01E-06	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.84E-03	lb/hr	1.38E-06	tpy
Main Drill Rig Engine 1	12 hr/yr	205.8 g/kWh	2480 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	6.19E-03	lb/hr	3.71E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.25E-03	lb/hr	2.55E-05	tpy
Main Drill Rig Engine 2	1195 hr/yr	205.8 g/kWh	2480 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	6.19E-03	lb/hr	3.70E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.25E-03	lb/hr	2.54E-03	tpy
Main Drill Rig Engine 2	10 hr/yr	217.0 g/kWh	1249 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.29E-03	lb/hr	1.64E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.26E-03	lb/hr	1.13E-05	tpy
Main Drill Rig Engine 2	6 hr/yr	358.0 g/kWh	256 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.11E-03	lb/hr	3.34E-06	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	7.64E-04	lb/hr	2.29E-06	tpy
Main Drill Rig Engine 2	1.5 hr/yr	221.0 g/kWh	999 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.68E-03	lb/hr	2.01E-06	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.84E-03	lb/hr	1.38E-06	tpy
Main Drill Rig Engine 3	12 hr/yr	205.8 g/kWh	2480 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	6.19E-03	lb/hr	3.71E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.25E-03	lb/hr	2.55E-05	tpy
Main Drill Rig Engine 3	1195 hr/yr	205.8 g/kWh	2480 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	6.19E-03	lb/hr	3.70E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.25E-03	lb/hr	2.54E-03	tpy
Main Drill Rig Engine 3	10 hr/yr	358.0 g/kWh	256 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.11E-03	lb/hr	5.56E-06	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	7.64E-04	lb/hr	3.82E-06	tpy
Main Drill Rig Engine 3	6 hr/yr	358.0 g/kWh	256 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.11E-03	lb/hr	3.34E-06	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	7.64E-04	lb/hr	2.29E-06	tpy
Main Drill Rig Engine 3	1.5 hr/yr	221.0 g/kWh	999 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.68E-03	lb/hr	2.01E-06	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.84E-03	lb/hr	1.38E-06	tpy
Main Drill Rig Engine 4	1195 hr/yr	205.8 g/kWh	2480 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	6.19E-03	lb/hr	3.70E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.25E-03	lb/hr	2.54E-03	tpy
Emergency Back-up Engine	75 hr/yr	205.0 g/kWh	968 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.41E-03	lb/hr	9.03E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.65E-03	lb/hr	6.20E-05	tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 kW	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.57E-03	lb/hr	1.03E-04	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.09E-03	lb/hr	7.15E-05	tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 kW	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.57E-03	lb/hr	1.03E-04	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.09E-03	lb/hr	7.15E-05	tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187 kW	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	7.18E-04	lb/hr	9.80E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.00E-04	lb/hr	6.83E-05	tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4 MMBtu/hr*	1.14E+01	lb/10^12 Btu	CARB-CATEF	3.97E-05	lb/hr	4.77E-05	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	3.95E-05	lb/hr	4.74E-05	tpy
Heater 2	2400 hr/yr	26.5 gal/hr	4 MMBtu/hr*	1.14E+01	lb/10^12 Btu	CARB-CATEF	3.97E-05	lb/hr	4.77E-05	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	3.95E-05	lb/hr	4.74E-05	tpy
Incinerator	65 tons/yr	276.0 lbs/hr	N A	none							none						
Fuel Tank 1	2400 hrs/yr	473574.8 gal/yr**	N A	N A		EPA TANKS	3.33E-05	lb/hr	4.00E-05	tpy	none						
Fuel Tank 2	2400 hrs/yr	473574.8 gal/yr**	N A	N A		EPA TANKS	3.33E-05	lb/hr	4.00E-05	tpy	none						
Mud Degassing	100 days/yr	NA 0	20000 scf/day	none							none						
			*Heat input rate			Drill Rig Total	6.26E-02	lb/hr	1.55E-02	tpy			Drill Rig Total	4.30E-02	lb/hr	1.06E-02	tpy
Ice Breaker 1																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 hp	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.58E-02	lb/hr	5.34E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.09E-02	lb/hr	3.67E-03	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 hp	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.58E-02	lb/hr	5.34E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.09E-02	lb/hr	3.67E-03	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 hp	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.19E-02	lb/hr	4.01E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	8.15E-03	lb/hr	2.75E-03	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 hp	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.19E-02	lb/hr	4.01E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	8.15E-03	lb/hr	2.75E-03	tpy
Harbor Generator	8 hr/yr	50.5 gal/hr	952 hp	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.87E-03	lb/hr	7.49E-06	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.29E-03	lb/hr	5.15E-06	tpy
Emergency Generator	8 hr/yr	21.3 gal/hr	402 hp	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.15E-03	lb/hr	4.61E-06	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	8.03E-04	lb/hr	3.21E-06	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	1.14E+01	lb/10^12 Btu	CARB-CATEF	4.20E-05	lb/hr	1.42E-05	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	4.17E-05	lb/hr	1.41E-05	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	1.14E+01	lb/10^12 Btu	CARB-CATEF	4.20E-05	lb/hr	1.42E-05	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	4.17E-05	lb/hr	1.41E-05	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N A	none							none						
			*Heat input rate			Vessel Total	5.85E-02	lb/hr	1.87E-02	tpy			Vessel Total	4.02E-02	lb/hr	1.29E-02	tpy
Ice Breaker 2																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 hp	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.58E-02	lb/hr	5.34E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.09E-02	lb/hr	3.67E-03	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 hp	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.58E-02	lb/hr	5.34E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.09E-02	lb/hr	3.67E-03	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 hp	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.19E-02	lb/hr	4.01E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	8.15E-03	lb/hr	2.75E-03	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 hp	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.19E-02	lb/hr	4.01E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	8.15E-03	lb/hr	2.75E-03	tpy
Harbor Generator	8 hr/yr	50.5 gal/hr	952 hp	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.87E-03	lb/hr	7.49E-06	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.29E-03	lb/hr	5.15E-06	tpy
Emergency Generator	8 hr/yr	21.3 gal/hr	402 hp	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.15E-03	lb/hr	4.61E-06	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	8.03E-04	lb/hr	3.21E-06	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	1.14E+01	lb/10^12 Btu	CARB-CATEF	4.20E-05	lb/hr	1.42E-05	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	4.17E-05	lb/hr	1.41E-05	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	1.14E+01	lb/10^12 Btu	CARB-CATEF	4.20E-05	lb/hr	1.42E-05	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	4.17E-05	lb/hr	1.41E-05	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N A	none							none						
			*Heat input rate			Vessel Total	5.85E-02	lb/hr	1.87E-02	tpy			Vessel Total	4.02E-02	lb/hr	1.29E-02	tpy

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Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	o-Xylene Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	m-Xylene Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																	
Main Drill Rig Engine 1	1195 hr/yr	205.8 g/kWh	2480 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.49E-03	lb/hr	2.08E-03	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.60E-03	lb/hr	2.15E-03	tpy
Main Drill Rig Engine 1	10 hr/yr	217.0 g/kWh	1249 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.85E-03	lb/hr	9.26E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.91E-03	lb/hr	9.57E-06	tpy
Main Drill Rig Engine 1	6 hr/yr	358.0 g/kWh	256 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.26E-04	lb/hr	1.88E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.47E-04	lb/hr	1.94E-06	tpy
Main Drill Rig Engine 1	1.5 hr/yr	221.0 g/kWh	999 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.51E-03	lb/hr	1.13E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.56E-03	lb/hr	1.17E-06	tpy
Main Drill Rig Engine 1	12 hr/yr	205.8 g/kWh	2480 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.49E-03	lb/hr	2.09E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.60E-03	lb/hr	2.16E-05	tpy
Main Drill Rig Engine 2	1195 hr/yr	205.8 g/kWh	2480 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.49E-03	lb/hr	2.08E-03	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.60E-03	lb/hr	2.15E-03	tpy
Main Drill Rig Engine 2	10 hr/yr	217.0 g/kWh	1249 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.85E-03	lb/hr	9.26E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.91E-03	lb/hr	9.57E-06	tpy
Main Drill Rig Engine 2	6 hr/yr	358.0 g/kWh	256 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.26E-04	lb/hr	1.88E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.47E-04	lb/hr	1.94E-06	tpy
Main Drill Rig Engine 2	1.5 hr/yr	221.0 g/kWh	999 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.51E-03	lb/hr	1.13E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.56E-03	lb/hr	1.17E-06	tpy
Main Drill Rig Engine 3	12 hr/yr	205.8 g/kWh	2480 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.49E-03	lb/hr	2.09E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.60E-03	lb/hr	2.16E-05	tpy
Main Drill Rig Engine 3	1195 hr/yr	205.8 g/kWh	2480 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.49E-03	lb/hr	2.08E-03	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.60E-03	lb/hr	2.15E-03	tpy
Main Drill Rig Engine 3	10 hr/yr	358.0 g/kWh	256 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.26E-04	lb/hr	3.13E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.47E-04	lb/hr	3.23E-06	tpy
Main Drill Rig Engine 3	6 hr/yr	358.0 g/kWh	256 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.26E-04	lb/hr	1.88E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.47E-04	lb/hr	1.94E-06	tpy
Main Drill Rig Engine 3	1.5 hr/yr	221.0 g/kWh	999 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.51E-03	lb/hr	1.13E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.56E-03	lb/hr	1.17E-06	tpy
Main Drill Rig Engine 4	1195 hr/yr	205.8 g/kWh	2480 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.49E-03	lb/hr	2.08E-03	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.60E-03	lb/hr	2.15E-03	tpy
Emergency Back-up Engine	75 hr/yr	205.0 g/kWh	968 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.36E-03	lb/hr	5.08E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.40E-03	lb/hr	5.25E-05	tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.06E-04	lb/hr	3.97E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.26E-04	lb/hr	4.10E-05	tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.06E-04	lb/hr	3.97E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.26E-04	lb/hr	4.10E-05	tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	2.78E-04	lb/hr	3.79E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	2.87E-04	lb/hr	3.92E-05	tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4 MMBtu/hr*	none							none						
Heater 2	2400 hr/yr	26.5 gal/hr	4 MMBtu/hr*	none							none						
Incinerator	65 tons/yr	276.0 lbs/hr	N A	none							none						
Fuel Tank 1	2400 hrs/yr	473574.8 gal/yr**	N A	none							N A		EPA TANKS	7.08E-05	lb/hr	8.50E-05	tpy
Fuel Tank 2	2400 hrs/yr	473574.8 gal/yr**	N A	none							N A		EPA TANKS	6.67E-05	lb/hr	8.00E-05	tpy
Mud Degassing	100 days/yr	NA 0	20000 scf/day	none							none						
			*Heat input rate			Drill Rig Total	3.45E-02	lb/hr	8.57E-03	tpy			Drill Rig Total	3.58E-02	lb/hr	9.02E-03	tpy
Ice Breaker 1																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	8.91E-03	lb/hr	3.01E-03	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	9.21E-03	lb/hr	3.11E-03	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	8.91E-03	lb/hr	3.01E-03	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	9.21E-03	lb/hr	3.11E-03	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.68E-03	lb/hr	2.26E-03	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.91E-03	lb/hr	2.33E-03	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.68E-03	lb/hr	2.26E-03	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.91E-03	lb/hr	2.33E-03	tpy
Harbor Generator	8 hr/yr	50.5 gal/hr	952 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.05E-03	lb/hr	4.22E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.09E-03	lb/hr	4.36E-06	tpy
Emergency Generator	8 hr/yr	21.3 gal/hr	402 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	4.46E-04	lb/hr	1.78E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	4.60E-04	lb/hr	1.84E-06	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	none							none						
Boiler 2	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	none							none						
Incinerator	675 hr/yr	175.0 lb/hr	N A	none							none						
			*Heat input rate			Vessel Total	3.27E-02	lb/hr	1.05E-02	tpy			Vessel Total	3.38E-02	lb/hr	1.09E-02	tpy
Ice Breaker 2																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	8.91E-03	lb/hr	3.01E-03	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	9.21E-03	lb/hr	3.11E-03	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	8.91E-03	lb/hr	3.01E-03	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	9.21E-03	lb/hr	3.11E-03	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.68E-03	lb/hr	2.26E-03	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.91E-03	lb/hr	2.33E-03	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.68E-03	lb/hr	2.26E-03	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.91E-03	lb/hr	2.33E-03	tpy
Harbor Generator	8 hr/yr	50.5 gal/hr	952 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.05E-03	lb/hr	4.22E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.09E-03	lb/hr	4.36E-06	tpy
Emergency Generator	8 hr/yr	21.3 gal/hr	402 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	4.46E-04	lb/hr	1.78E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	4.60E-04	lb/hr	1.84E-06	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	none							none						
Boiler 2	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	none							none						
Incinerator	675 hr/yr	175.0 lb/hr	N A	none							none						
			*Heat input rate			Vessel Total	3.27E-02	lb/hr	1.05E-02	tpy			Vessel Total	3.38E-02	lb/hr	1.09E-02	tpy

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					Arsenic Compounds (inorganic including arsine)							Beryllium Compounds						
	Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																		
0	Main Drill Rig Engine 1	1195 hr/yr	205.8 g/kWh	2480 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.67E-04	lb/hr	1.59E-04	tpy	none						
0	Main Drill Rig Engine 1	10 hr/yr	217.0 g/kWh	1249 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.42E-04	lb/hr	7.09E-07	tpy	none						
0	Main Drill Rig Engine 1	6 hr/yr	358.0 g/kWh	256 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.79E-05	lb/hr	1.44E-07	tpy	none						
0	Main Drill Rig Engine 1	1.5 hr/yr	221.0 g/kWh	999 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.15E-04	lb/hr	8.66E-08	tpy	none						
0	Main Drill Rig Engine 1	12 hr/yr	205.8 g/kWh	2480 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.67E-04	lb/hr	1.60E-06	tpy	none						
0	Main Drill Rig Engine 2	1195 hr/yr	205.8 g/kWh	2480 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.67E-04	lb/hr	1.59E-04	tpy	none						
0	Main Drill Rig Engine 2	10 hr/yr	217.0 g/kWh	1249 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.42E-04	lb/hr	7.09E-07	tpy	none						
0	Main Drill Rig Engine 2	6 hr/yr	358.0 g/kWh	256 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.79E-05	lb/hr	1.44E-07	tpy	none						
0	Main Drill Rig Engine 2	1.5 hr/yr	221.0 g/kWh	999 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.15E-04	lb/hr	8.66E-08	tpy	none						
0	Main Drill Rig Engine 3	12 hr/yr	205.8 g/kWh	2480 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.67E-04	lb/hr	1.60E-06	tpy	none						
0	Main Drill Rig Engine 3	1195 hr/yr	205.8 g/kWh	2480 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.67E-04	lb/hr	1.59E-04	tpy	none						
0	Main Drill Rig Engine 3	10 hr/yr	358.0 g/kWh	256 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.79E-05	lb/hr	2.40E-07	tpy	none						
0	Main Drill Rig Engine 3	6 hr/yr	358.0 g/kWh	256 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.79E-05	lb/hr	1.44E-07	tpy	none						
0	Main Drill Rig Engine 3	1.5 hr/yr	221.0 g/kWh	999 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.15E-04	lb/hr	8.66E-08	tpy	none						
0	Main Drill Rig Engine 4	1195 hr/yr	205.8 g/kWh	2480 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.67E-04	lb/hr	1.59E-04	tpy	none						
0	Emergency Back-up Engine	75 hr/yr	205.0 g/kWh	968 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.04E-04	lb/hr	3.89E-06	tpy	none						
0	Cement Engine 1	131 hr/yr	29.0 gal/hr	403 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.64E-05	lb/hr	3.04E-06	tpy	none						
0	Cement Engine 2	131 hr/yr	29.0 gal/hr	403 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.64E-05	lb/hr	3.04E-06	tpy	none						
0	Logging Winch	273 hr/yr	13.3 gal/hr	187 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.13E-05	lb/hr	2.90E-06	tpy	none						
0	Heater 1	2400 hr/yr	26.5 gal/hr	4 MMBtu/hr*	4.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.40E-05	lb/hr	1.68E-05	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.05E-05	lb/hr	1.26E-05	tpy
0	Heater 2	2400 hr/yr	26.5 gal/hr	4 MMBtu/hr*	4.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.40E-05	lb/hr	1.68E-05	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.05E-05	lb/hr	1.26E-05	tpy
0	Incinerator	65 tons/yr	276.0 lbs/hr	N A	4.37E-03	lb/ton	AP-42 2.1-2	6.03E-04	lb/hr	1.43E-04	tpy	none						
0	Fuel Tank 1	2400 hrs/yr	473574.8 gal/yr**	N A	none							none						
0	Fuel Tank 2	2400 hrs/yr	473574.8 gal/yr**	N A	none							none						
0	Mud Degassing	100 days/yr	NA 0	20000 scf/day	none							none						
				*Heat input rate			Drill Rig Total	3.27E-03	lb/hr	8.32E-04	tpy			Drill Rig Total	2.10E-05	lb/hr	2.52E-05	tpy
Ice Breaker 1																		
0	Main Engine 1	675 hr/yr	426.4 gal/hr	8046 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	6.82E-04	lb/hr	2.30E-04	tpy	none						
0	Main Engine 2	675 hr/yr	426.4 gal/hr	8046 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	6.82E-04	lb/hr	2.30E-04	tpy	none						
0	Main Engine 3	675 hr/yr	319.8 gal/hr	6035 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	5.12E-04	lb/hr	1.73E-04	tpy	none						
0	Main Engine 4	675 hr/yr	319.8 gal/hr	6035 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	5.12E-04	lb/hr	1.73E-04	tpy	none						
0	Harbor Generator	8 hr/yr	50.5 gal/hr	952 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	8.07E-05	lb/hr	3.23E-07	tpy	none						
0	Emergency Generator	8 hr/yr	21.3 gal/hr	402 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	3.41E-05	lb/hr	1.36E-07	tpy	none						
0	Boiler 1	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	4.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.48E-05	lb/hr	4.99E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy
0	Boiler 2	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	4.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.48E-05	lb/hr	4.99E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy
0	Incinerator	675 hr/yr	175.0 lb/hr	N A	4.37E-03	lb/ton	AP-42 2.1-2	3.82E-04	lb/hr	1.29E-04	tpy	none						
				*Heat input rate			Vessel Total	2.91E-03	lb/hr	9.45E-04	tpy			Vessel Total	2.22E-05	lb/hr	7.49E-06	tpy
Ice Breaker 2																		
0	Main Engine 1	675 hr/yr	426.4 gal/hr	8046 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	6.82E-04	lb/hr	2.30E-04	tpy	none						
0	Main Engine 2	675 hr/yr	426.4 gal/hr	8046 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	6.82E-04	lb/hr	2.30E-04	tpy	none						
0	Main Engine 3	675 hr/yr	319.8 gal/hr	6035 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	5.12E-04	lb/hr	1.73E-04	tpy	none						
0	Main Engine 4	675 hr/yr	319.8 gal/hr	6035 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	5.12E-04	lb/hr	1.73E-04	tpy	none						
0	Harbor Generator	8 hr/yr	50.5 gal/hr	952 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	8.07E-05	lb/hr	3.23E-07	tpy	none						
0	Emergency Generator	8 hr/yr	21.3 gal/hr	402 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	3.41E-05	lb/hr	1.36E-07	tpy	none						
0	Boiler 1	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	4.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.48E-05	lb/hr	4.99E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy
0	Boiler 2	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	4.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.48E-05	lb/hr	4.99E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy
0	Incinerator	675 hr/yr	175.0 lb/hr	N A	4.37E-03	lb/ton	AP-42 2.1-2	3.82E-04	lb/hr	1.29E-04	tpy	none						
				*Heat input rate			Vessel Total	2.91E-03	lb/hr	9.45E-04	tpy			Vessel Total	2.22E-05	lb/hr	7.49E-06	tpy

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					Cadmium Compounds							Chromium Compounds						
	Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
	Drill Rig Equipment																	
0	Main Drill Rig Engine 1	1195 hr/yr	205.8 g/kWh	2480 kW	1.14E-05	lb/MMBtu fuel input	VCAPCD	2.50E-04	lb/hr	1.49E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	6.97E-05	tpy
0	Main Drill Rig Engine 1	10 hr/yr	217.0 g/kWh	1249 kW	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.33E-04	lb/hr	6.64E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	6.20E-05	lb/hr	3.10E-07	tpy
0	Main Drill Rig Engine 1	6 hr/yr	358.0 g/kWh	256 kW	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.49E-05	lb/hr	1.35E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.10E-05	lb/hr	6.29E-08	tpy
0	Main Drill Rig Engine 1	1.5 hr/yr	221.0 g/kWh	999 kW	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.08E-04	lb/hr	8.12E-08	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.05E-05	lb/hr	3.79E-08	tpy
0	Main Drill Rig Engine 1	12 hr/yr	205.8 g/kWh	2480 kW	1.14E-05	lb/MMBtu fuel input	VCAPCD	2.50E-04	lb/hr	1.50E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	7.01E-07	tpy
0	Main Drill Rig Engine 2	1195 hr/yr	205.8 g/kWh	2480 kW	1.14E-05	lb/MMBtu fuel input	VCAPCD	2.50E-04	lb/hr	1.49E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	6.97E-05	tpy
0	Main Drill Rig Engine 2	10 hr/yr	217.0 g/kWh	1249 kW	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.33E-04	lb/hr	6.64E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	6.20E-05	lb/hr	3.10E-07	tpy
0	Main Drill Rig Engine 2	6 hr/yr	358.0 g/kWh	256 kW	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.49E-05	lb/hr	1.35E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.10E-05	lb/hr	6.29E-08	tpy
0	Main Drill Rig Engine 2	1.5 hr/yr	221.0 g/kWh	999 kW	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.08E-04	lb/hr	8.12E-08	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.05E-05	lb/hr	3.79E-08	tpy
0	Main Drill Rig Engine 3	12 hr/yr	205.8 g/kWh	2480 kW	1.14E-05	lb/MMBtu fuel input	VCAPCD	2.50E-04	lb/hr	1.50E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	7.01E-07	tpy
0	Main Drill Rig Engine 3	1195 hr/yr	205.8 g/kWh	2480 kW	1.14E-05	lb/MMBtu fuel input	VCAPCD	2.50E-04	lb/hr	1.49E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	6.97E-05	tpy
0	Main Drill Rig Engine 3	10 hr/yr	358.0 g/kWh	256 kW	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.49E-05	lb/hr	2.25E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.10E-05	lb/hr	1.05E-07	tpy
0	Main Drill Rig Engine 3	6 hr/yr	358.0 g/kWh	256 kW	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.49E-05	lb/hr	1.35E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.10E-05	lb/hr	6.29E-08	tpy
0	Main Drill Rig Engine 3	1.5 hr/yr	221.0 g/kWh	999 kW	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.08E-04	lb/hr	8.12E-08	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.05E-05	lb/hr	3.79E-08	tpy
0	Main Drill Rig Engine 4	1195 hr/yr	205.8 g/kWh	2480 kW	1.14E-05	lb/MMBtu fuel input	VCAPCD	2.50E-04	lb/hr	1.49E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	6.97E-05	tpy
0	Emergency Back-up Engine	75 hr/yr	205.0 g/kWh	968 kW	1.14E-05	lb/MMBtu fuel input	VCAPCD	9.73E-05	lb/hr	3.65E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.54E-05	lb/hr	1.70E-06	tpy
0	Cement Engine 1	131 hr/yr	29.0 gal/hr	403 kW	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.35E-05	lb/hr	2.85E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.03E-05	lb/hr	1.33E-06	tpy
0	Cement Engine 2	131 hr/yr	29.0 gal/hr	403 kW	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.35E-05	lb/hr	2.85E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.03E-05	lb/hr	1.33E-06	tpy
0	Logging Winch	273 hr/yr	13.3 gal/hr	187 kW	1.14E-05	lb/MMBtu fuel input	VCAPCD	1.99E-05	lb/hr	2.72E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	9.30E-06	lb/hr	1.27E-06	tpy
0	Heater 1	2400 hr/yr	26.5 gal/hr	4 MMBtu/hr*	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.05E-05	lb/hr	1.26E-05	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.05E-05	lb/hr	1.26E-05	tpy
0	Heater 2	2400 hr/yr	26.5 gal/hr	4 MMBtu/hr*	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.05E-05	lb/hr	1.26E-05	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.05E-05	lb/hr	1.26E-05	tpy
0	Incinerator	65 tons/yr	276.0 lbs/hr	N A	1.09E-02	lb/ton	AP-42 2.1-2	1.50E-03	lb/hr	3.56E-04	tpy	8.97E-03	lb/ton	AP-42 2.1-2	1.24E-03	lb/hr	1.08E-02	tpy
0	Fuel Tank 1	2400 hrs/yr	473574.8 gal/yr**	N A	none							none						
0	Fuel Tank 2	2400 hrs/yr	473574.8 gal/yr**	N A	none							none						
0	Mud Degassing	100 days/yr	NA 0	20000 scf/day	none							none						
				*Heat input rate			Drill Rig Total	4.00E-03	lb/hr	9.96E-04	tpy			Drill Rig Total	2.41E-03	lb/hr	1.11E-02	tpy
	Ice Breaker 1																	
0	Main Engine 1	675 hr/yr	426.4 gal/hr	8046 hp	1.14E-05	lb/MMBtu fuel input	VCAPCD	6.40E-04	lb/hr	2.16E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.98E-04	lb/hr	1.01E-04	tpy
0	Main Engine 2	675 hr/yr	426.4 gal/hr	8046 hp	1.14E-05	lb/MMBtu fuel input	VCAPCD	6.40E-04	lb/hr	2.16E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.98E-04	lb/hr	1.01E-04	tpy
0	Main Engine 3	675 hr/yr	319.8 gal/hr	6035 hp	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.80E-04	lb/hr	1.62E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	7.55E-05	tpy
0	Main Engine 4	675 hr/yr	319.8 gal/hr	6035 hp	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.80E-04	lb/hr	1.62E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	7.55E-05	tpy
0	Harbor Generator	8 hr/yr	50.5 gal/hr	952 hp	1.14E-05	lb/MMBtu fuel input	VCAPCD	7.57E-05	lb/hr	3.03E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	3.53E-05	lb/hr	1.41E-07	tpy
0	Emergency Generator	8 hr/yr	21.3 gal/hr	402 hp	1.14E-05	lb/MMBtu fuel input	VCAPCD	3.20E-05	lb/hr	1.28E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.49E-05	lb/hr	5.97E-08	tpy
0	Boiler 1	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy
0	Boiler 2	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy
0	Incinerator	675 hr/yr	175.0 lb/hr	N A	1.09E-02	lb/ton	AP-42 2.1-2	9.54E-04	lb/hr	3.22E-04	tpy	8.97E-03	lb/ton	AP-42 2.1-2	7.85E-04	lb/hr	2.65E-04	tpy
				*Heat input rate			Vessel Total	3.32E-03	lb/hr	1.09E-03	tpy			Vessel Total	1.90E-03	lb/hr	6.25E-04	tpy
	Ice Breaker 2																	
0	Main Engine 1	675 hr/yr	426.4 gal/hr	8046 hp	1.14E-05	lb/MMBtu fuel input	VCAPCD	6.40E-04	lb/hr	2.16E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.98E-04	lb/hr	1.01E-04	tpy
0	Main Engine 2	675 hr/yr	426.4 gal/hr	8046 hp	1.14E-05	lb/MMBtu fuel input	VCAPCD	6.40E-04	lb/hr	2.16E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.98E-04	lb/hr	1.01E-04	tpy
0	Main Engine 3	675 hr/yr	319.8 gal/hr	6035 hp	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.80E-04	lb/hr	1.62E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	7.55E-05	tpy
0	Main Engine 4	675 hr/yr	319.8 gal/hr	6035 hp	1.14E-05	lb/MMBtu fuel input	VCAPCD	4.80E-04	lb/hr	1.62E-04	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	7.55E-05	tpy
0	Harbor Generator	8 hr/yr	50.5 gal/hr	952 hp	1.14E-05	lb/MMBtu fuel input	VCAPCD	7.57E-05	lb/hr	3.03E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	3.53E-05	lb/hr	1.41E-07	tpy
0	Emergency Generator	8 hr/yr	21.3 gal/hr	402 hp	1.14E-05	lb/MMBtu fuel input	VCAPCD	3.20E-05	lb/hr	1.28E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.49E-05	lb/hr	5.97E-08	tpy
0	Boiler 1	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy
0	Boiler 2	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy
0	Incinerator	675 hr/yr	175.0 lb/hr	N A	1.09E-02	lb/ton	AP-42 2.1-2	9.54E-04	lb/hr	3.22E-04	tpy	8.97E-03	lb/ton	AP-42 2.1-2	7.85E-04	lb/hr	2.65E-04	tpy
				*Heat input rate			Vessel Total	3.32E-03	lb/hr	1.09E-03	tpy			Vessel Total	1.90E-03	lb/hr	6.25E-04	tpy

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					Lead Compounds							Manganese Compounds						
Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																		
0 Main Drill Rig Engine 1	1195 hr/yr	205.8 g/kWh	2480	kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.38E-03	lb/hr	8.27E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	5.17E-04	lb/hr	3.09E-04	tpy
0 Main Drill Rig Engine 1	10 hr/yr	217.0 g/kWh	1249	kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	7.35E-04	lb/hr	3.68E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.75E-04	lb/hr	1.37E-06	tpy
0 Main Drill Rig Engine 1	6 hr/yr	358.0 g/kWh	256	kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.49E-04	lb/hr	7.46E-07	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.28E-05	lb/hr	2.79E-07	tpy
0 Main Drill Rig Engine 1	1.5 hr/yr	221.0 g/kWh	999	kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	5.99E-04	lb/hr	4.49E-07	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	1.68E-07	tpy
0 Main Drill Rig Engine 1	12 hr/yr	205.8 g/kWh	2480	kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.38E-03	lb/hr	8.31E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	5.17E-04	lb/hr	3.10E-06	tpy
0 Main Drill Rig Engine 2	1195 hr/yr	205.8 g/kWh	2480	kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.38E-03	lb/hr	8.27E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	5.17E-04	lb/hr	3.09E-04	tpy
0 Main Drill Rig Engine 2	10 hr/yr	217.0 g/kWh	1249	kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	7.35E-04	lb/hr	3.68E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.75E-04	lb/hr	1.37E-06	tpy
0 Main Drill Rig Engine 2	6 hr/yr	358.0 g/kWh	256	kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.49E-04	lb/hr	7.46E-07	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.28E-05	lb/hr	2.79E-07	tpy
0 Main Drill Rig Engine 2	1.5 hr/yr	221.0 g/kWh	999	kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	5.99E-04	lb/hr	4.49E-07	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	1.68E-07	tpy
0 Main Drill Rig Engine 3	12 hr/yr	205.8 g/kWh	2480	kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.38E-03	lb/hr	8.31E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	5.17E-04	lb/hr	3.10E-06	tpy
0 Main Drill Rig Engine 3	1195 hr/yr	205.8 g/kWh	2480	kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.38E-03	lb/hr	8.27E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	5.17E-04	lb/hr	3.09E-04	tpy
0 Main Drill Rig Engine 3	10 hr/yr	358.0 g/kWh	256	kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.49E-04	lb/hr	1.24E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.28E-05	lb/hr	4.64E-07	tpy
0 Main Drill Rig Engine 3	6 hr/yr	358.0 g/kWh	256	kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.49E-04	lb/hr	7.46E-07	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.28E-05	lb/hr	2.79E-07	tpy
0 Main Drill Rig Engine 3	1.5 hr/yr	221.0 g/kWh	999	kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	5.99E-04	lb/hr	4.49E-07	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	1.68E-07	tpy
0 Main Drill Rig Engine 4	1195 hr/yr	205.8 g/kWh	2480	kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.38E-03	lb/hr	8.27E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	5.17E-04	lb/hr	3.09E-04	tpy
0 Emergency Back-up Engine	75 hr/yr	205.0 g/kWh	968	kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	5.38E-04	lb/hr	2.02E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.01E-04	lb/hr	7.54E-06	tpy
0 Cement Engine 1	131 hr/yr	29.0 gal/hr	403	kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.41E-04	lb/hr	1.58E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.99E-05	lb/hr	5.89E-06	tpy
0 Cement Engine 2	131 hr/yr	29.0 gal/hr	403	kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.41E-04	lb/hr	1.58E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.99E-05	lb/hr	5.89E-06	tpy
0 Logging Winch	273 hr/yr	13.3 gal/hr	187	kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.10E-04	lb/hr	1.50E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	4.12E-05	lb/hr	5.62E-06	tpy
0 Heater 1	2400 hr/yr	26.5 gal/hr	4	MMBtu/hr*	9.00E+00	lb/10^12 Btu	AP-42 1.3-10	3.15E-05	lb/hr	3.78E-05	tpy	6.00E+00	lb/10^12 Btu	AP-42 1.3-10	2.10E-05	lb/hr	2.52E-05	tpy
0 Heater 2	2400 hr/yr	26.5 gal/hr	4	MMBtu/hr*	9.00E+00	lb/10^12 Btu	AP-42 1.3-10	3.15E-05	lb/hr	3.78E-05	tpy	6.00E+00	lb/10^12 Btu	AP-42 1.3-10	2.10E-05	lb/hr	2.52E-05	tpy
0 Incinerator	65 tons/yr	276.0 lbs/hr	N	A	2.13E-01	lb/ton	AP-42 2.1-2	2.94E-02	lb/hr	2.56E-01	tpy	none						
0 Fuel Tank 1	2400 hrs/yr	473574.8 gal/yr**	N	A	none							none						
0 Fuel Tank 2	2400 hrs/yr	473574.8 gal/yr**	N	A	none							none						
0 Mud Degassing	100 days/yr	NA 0	20000	scf/day	none							none						
			*Heat input rate				Drill Rig Total	4.32E-02	lb/hr	2.59E-01	tpy			Drill Rig Total	5.16E-03	lb/hr	1.32E-03	tpy
Ice Breaker 1																		
0 Main Engine 1	675 hr/yr	426.4 gal/hr	8046	hp	6.28E-05	lb/MMBtu fuel input	VCAPCD	3.54E-03	lb/hr	1.19E-03	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.32E-03	lb/hr	4.46E-04	tpy
0 Main Engine 2	675 hr/yr	426.4 gal/hr	8046	hp	6.28E-05	lb/MMBtu fuel input	VCAPCD	3.54E-03	lb/hr	1.19E-03	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.32E-03	lb/hr	4.46E-04	tpy
0 Main Engine 3	675 hr/yr	319.8 gal/hr	6035	hp	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.65E-03	lb/hr	8.96E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.91E-04	lb/hr	3.35E-04	tpy
0 Main Engine 4	675 hr/yr	319.8 gal/hr	6035	hp	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.65E-03	lb/hr	8.96E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.91E-04	lb/hr	3.35E-04	tpy
0 Harbor Generator	8 hr/yr	50.5 gal/hr	952	hp	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.19E-04	lb/hr	1.68E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.56E-04	lb/hr	6.26E-07	tpy
0 Emergency Generator	8 hr/yr	21.3 gal/hr	402	hp	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.77E-04	lb/hr	7.08E-07	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	6.61E-05	lb/hr	2.64E-07	tpy
0 Boiler 1	675 hr/yr	28.0 gal/hr	4	MMBtu/hr*	9.00E+00	lb/10^12 Btu	AP-42 1.3-10	3.33E-05	lb/hr	1.12E-05	tpy	6.00E+00	lb/10^12 Btu	AP-42 1.3-10	2.22E-05	lb/hr	7.49E-06	tpy
0 Boiler 2	675 hr/yr	28.0 gal/hr	4	MMBtu/hr*	9.00E+00	lb/10^12 Btu	AP-42 1.3-10	3.33E-05	lb/hr	1.12E-05	tpy	6.00E+00	lb/10^12 Btu	AP-42 1.3-10	2.22E-05	lb/hr	7.49E-06	tpy
0 Incinerator	675 hr/yr	175.0 lb/hr	N	A	2.13E-01	lb/ton	AP-42 2.1-2	1.86E-02	lb/hr	6.29E-03	tpy	none						
			*Heat input rate				Vessel Total	3.17E-02	lb/hr	1.05E-02	tpy			Vessel Total	4.89E-03	lb/hr	1.58E-03	tpy
Ice Breaker 2																		
0 Main Engine 1	675 hr/yr	426.4 gal/hr	8046	hp	6.28E-05	lb/MMBtu fuel input	VCAPCD	3.54E-03	lb/hr	1.19E-03	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.32E-03	lb/hr	4.46E-04	tpy
0 Main Engine 2	675 hr/yr	426.4 gal/hr	8046	hp	6.28E-05	lb/MMBtu fuel input	VCAPCD	3.54E-03	lb/hr	1.19E-03	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.32E-03	lb/hr	4.46E-04	tpy
0 Main Engine 3	675 hr/yr	319.8 gal/hr	6035	hp	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.65E-03	lb/hr	8.96E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.91E-04	lb/hr	3.35E-04	tpy
0 Main Engine 4	675 hr/yr	319.8 gal/hr	6035	hp	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.65E-03	lb/hr	8.96E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.91E-04	lb/hr	3.35E-04	tpy
0 Harbor Generator	8 hr/yr	50.5 gal/hr	952	hp	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.19E-04	lb/hr	1.68E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.56E-04	lb/hr	6.26E-07	tpy
0 Emergency Generator	8 hr/yr	21.3 gal/hr	402	hp	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.77E-04	lb/hr	7.08E-07	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	6.61E-05	lb/hr	2.64E-07	tpy
0 Boiler 1	675 hr/yr	28.0 gal/hr	4	MMBtu/hr*	9.00E+00	lb/10^12 Btu	AP-42 1.3-10	3.33E-05	lb/hr	1.12E-05	tpy	6.00E+00	lb/10^12 Btu	AP-42 1.3-10	2.22E-05	lb/hr	7.49E-06	tpy
0 Boiler 2	675 hr/yr	28.0 gal/hr	4	MMBtu/hr*	9.00E+00	lb/10^12 Btu	AP-42 1.3-10	3.33E-05	lb/hr	1.12E-05	tpy	6.00E+00	lb/10^12 Btu	AP-42 1.3-10	2.22E-05	lb/hr	7.49E-06	tpy
0 Incinerator	675 hr/yr	175.0 lb/hr	N	A	2.13E-01	lb/ton	AP-42 2.1-2	1.86E-02	lb/hr	6.29E-03	tpy	none						
			*Heat input rate				Vessel Total	3.17E-02	lb/hr	1.05E-02	tpy			Vessel Total	4.89E-03	lb/hr	1.58E-03	tpy

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					Mercury Compounds							Nickel Compounds						
	Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
	Drill Rig Equipment																	
0	Main Drill Rig Engine 1	1195 hr/yr	205.8 g/kWh	2480 kW	1.51E-05	lb/MMBtu fuel input	VCAPCD	3.34E-04	lb/hr	1.99E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	6.50E-04	lb/hr	3.89E-04	tpy
0	Main Drill Rig Engine 1	10 hr/yr	217.0 g/kWh	1249 kW	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.77E-04	lb/hr	8.86E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.45E-04	lb/hr	1.73E-06	tpy
0	Main Drill Rig Engine 1	6 hr/yr	358.0 g/kWh	256 kW	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.99E-05	lb/hr	1.80E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	3.50E-07	tpy
0	Main Drill Rig Engine 1	1.5 hr/yr	221.0 g/kWh	999 kW	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.44E-04	lb/hr	1.08E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.81E-04	lb/hr	2.11E-07	tpy
0	Main Drill Rig Engine 1	12 hr/yr	205.8 g/kWh	2480 kW	1.51E-05	lb/MMBtu fuel input	VCAPCD	3.34E-04	lb/hr	2.00E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	6.50E-04	lb/hr	3.90E-06	tpy
0	Main Drill Rig Engine 2	1195 hr/yr	205.8 g/kWh	2480 kW	1.51E-05	lb/MMBtu fuel input	VCAPCD	3.34E-04	lb/hr	1.99E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	6.50E-04	lb/hr	3.89E-04	tpy
0	Main Drill Rig Engine 2	10 hr/yr	217.0 g/kWh	1249 kW	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.77E-04	lb/hr	8.86E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.45E-04	lb/hr	1.73E-06	tpy
0	Main Drill Rig Engine 2	6 hr/yr	358.0 g/kWh	256 kW	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.99E-05	lb/hr	1.80E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	3.50E-07	tpy
0	Main Drill Rig Engine 2	1.5 hr/yr	221.0 g/kWh	999 kW	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.44E-04	lb/hr	1.08E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.81E-04	lb/hr	2.11E-07	tpy
0	Main Drill Rig Engine 3	12 hr/yr	205.8 g/kWh	2480 kW	1.51E-05	lb/MMBtu fuel input	VCAPCD	3.34E-04	lb/hr	2.00E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	6.50E-04	lb/hr	3.90E-06	tpy
0	Main Drill Rig Engine 3	1195 hr/yr	205.8 g/kWh	2480 kW	1.51E-05	lb/MMBtu fuel input	VCAPCD	3.34E-04	lb/hr	1.99E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	6.50E-04	lb/hr	3.89E-04	tpy
0	Main Drill Rig Engine 3	10 hr/yr	358.0 g/kWh	256 kW	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.99E-05	lb/hr	3.00E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	5.84E-07	tpy
0	Main Drill Rig Engine 3	6 hr/yr	358.0 g/kWh	256 kW	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.99E-05	lb/hr	1.80E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	3.50E-07	tpy
0	Main Drill Rig Engine 3	1.5 hr/yr	221.0 g/kWh	999 kW	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.44E-04	lb/hr	1.08E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.81E-04	lb/hr	2.11E-07	tpy
0	Main Drill Rig Engine 4	1195 hr/yr	205.8 g/kWh	2480 kW	1.51E-05	lb/MMBtu fuel input	VCAPCD	3.34E-04	lb/hr	1.99E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	6.50E-04	lb/hr	3.89E-04	tpy
0	Emergency Back-up Engine	75 hr/yr	205.0 g/kWh	968 kW	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.30E-04	lb/hr	4.86E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.53E-04	lb/hr	9.48E-06	tpy
0	Cement Engine 1	131 hr/yr	29.0 gal/hr	403 kW	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.80E-05	lb/hr	3.80E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.13E-04	lb/hr	7.41E-06	tpy
0	Cement Engine 2	131 hr/yr	29.0 gal/hr	403 kW	1.51E-05	lb/MMBtu fuel input	VCAPCD	5.80E-05	lb/hr	3.80E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.13E-04	lb/hr	7.41E-06	tpy
0	Logging Winch	273 hr/yr	13.3 gal/hr	187 kW	1.51E-05	lb/MMBtu fuel input	VCAPCD	2.66E-05	lb/hr	3.63E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	5.18E-05	lb/hr	7.07E-06	tpy
0	Heater 1	2400 hr/yr	26.5 gal/hr	4	MMBtu/hr*	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.05E-05	lb/hr	1.26E-05	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.05E-05	lb/hr	1.26E-05 tpy
0	Heater 2	2400 hr/yr	26.5 gal/hr	4	MMBtu/hr*	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.05E-05	lb/hr	1.26E-05	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.05E-05	lb/hr	1.26E-05 tpy
0	Incinerator	65 tons/yr	276.0 lbs/hr	N	A	5.60E-03	lb/ton	AP-42 2.1-2	7.73E-04	lb/hr	1.83E-04	tpy	7.85E-03	lb/ton	AP-42 2.1-2	1.08E-03	lb/hr	9.42E-03 tpy
0	Fuel Tank 1	2400 hrs/yr	473574.8 gal/yr**	N	A	none							none					
0	Fuel Tank 2	2400 hrs/yr	473574.8 gal/yr**	N	A	none							none					
0	Mud Degassing	100 days/yr	NA 0	20000	scf/day	none							none					
				*Heat input rate			Drill Rig Total	4.09E-03	lb/hr	1.03E-03	tpy			Drill Rig Total	7.54E-03	lb/hr	1.10E-02 tpy	
	Ice Breaker 1																	
0	Main Engine 1	675 hr/yr	426.4 gal/hr	8046	hp	1.51E-05	lb/MMBtu fuel input	VCAPCD	8.53E-04	lb/hr	2.88E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.66E-03	lb/hr	5.61E-04 tpy
0	Main Engine 2	675 hr/yr	426.4 gal/hr	8046	hp	1.51E-05	lb/MMBtu fuel input	VCAPCD	8.53E-04	lb/hr	2.88E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.66E-03	lb/hr	5.61E-04 tpy
0	Main Engine 3	675 hr/yr	319.8 gal/hr	6035	hp	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.40E-04	lb/hr	2.16E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.25E-03	lb/hr	4.21E-04 tpy
0	Main Engine 4	675 hr/yr	319.8 gal/hr	6035	hp	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.40E-04	lb/hr	2.16E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.25E-03	lb/hr	4.21E-04 tpy
0	Harbor Generator	8 hr/yr	50.5 gal/hr	952	hp	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.01E-04	lb/hr	4.04E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.97E-04	lb/hr	7.87E-07 tpy
0	Emergency Generator	8 hr/yr	21.3 gal/hr	402	hp	1.51E-05	lb/MMBtu fuel input	VCAPCD	4.26E-05	lb/hr	1.71E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	8.31E-05	lb/hr	3.33E-07 tpy
0	Boiler 1	675 hr/yr	28.0 gal/hr	4	MMBtu/hr*	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06 tpy
0	Boiler 2	675 hr/yr	28.0 gal/hr	4	MMBtu/hr*	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06 tpy
0	Incinerator	675 hr/yr	175.0 lb/hr	N	A	5.60E-03	lb/ton	AP-42 2.1-2	4.90E-04	lb/hr	3.31E-01	tpy	7.85E-03	lb/ton	AP-42 2.1-2	6.87E-04	lb/hr	2.32E-04 tpy
				*Heat input rate			Vessel Total	3.64E-03	lb/hr	3.32E-01	tpy			Vessel Total	6.81E-03	lb/hr	2.20E-03 tpy	
	Ice Breaker 2																	
0	Main Engine 1	675 hr/yr	426.4 gal/hr	8046	hp	1.51E-05	lb/MMBtu fuel input	VCAPCD	8.53E-04	lb/hr	2.88E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.66E-03	lb/hr	5.61E-04 tpy
0	Main Engine 2	675 hr/yr	426.4 gal/hr	8046	hp	1.51E-05	lb/MMBtu fuel input	VCAPCD	8.53E-04	lb/hr	2.88E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.66E-03	lb/hr	5.61E-04 tpy
0	Main Engine 3	675 hr/yr	319.8 gal/hr	6035	hp	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.40E-04	lb/hr	2.16E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.25E-03	lb/hr	4.21E-04 tpy
0	Main Engine 4	675 hr/yr	319.8 gal/hr	6035	hp	1.51E-05	lb/MMBtu fuel input	VCAPCD	6.40E-04	lb/hr	2.16E-04	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.25E-03	lb/hr	4.21E-04 tpy
0	Harbor Generator	8 hr/yr	50.5 gal/hr	952	hp	1.51E-05	lb/MMBtu fuel input	VCAPCD	1.01E-04	lb/hr	4.04E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.97E-04	lb/hr	7.87E-07 tpy
0	Emergency Generator	8 hr/yr	21.3 gal/hr	402	hp	1.51E-05	lb/MMBtu fuel input	VCAPCD	4.26E-05	lb/hr	1.71E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	8.31E-05	lb/hr	3.33E-07 tpy
0	Boiler 1	675 hr/yr	28.0 gal/hr	4	MMBtu/hr*	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06 tpy
0	Boiler 2	675 hr/yr	28.0 gal/hr	4	MMBtu/hr*	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.11E-05	lb/hr	3.74E-06 tpy
0	Incinerator	675 hr/yr	175.0 lb/hr	N	A	5.60E-03	lb/ton	AP-42 2.1-2	4.90E-04	lb/hr	3.31E-01	tpy	7.85E-03	lb/ton	AP-42 2.1-2	6.87E-04	lb/hr	2.32E-04 tpy
				*Heat input rate			Vessel Total	3.64E-03	lb/hr	3.32E-01	tpy			Vessel Total	6.81E-03	lb/hr	2.20E-03 tpy	

Devil's Paw Prospect - Annual Emissions Inventory - HAPs

Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Polycyclic Organic Matter (See notes 13 & 14)							Selenium Compounds						
				Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Drill Rig Equipment																	
Main Drill Rig Engine 1	1195 hr/yr	205.8 g/kWh	2480 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	4.66E-03	lb/hr	2.78E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.67E-04	lb/hr	2.19E-04	tpy
Main Drill Rig Engine 1	10 hr/yr	217.0 g/kWh	1249 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.47E-03	lb/hr	1.24E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.95E-04	lb/hr	9.74E-07	tpy
Main Drill Rig Engine 1	6 hr/yr	358.0 g/kWh	256 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.37E-04	lb/hr	2.51E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.59E-05	lb/hr	1.98E-07	tpy
Main Drill Rig Engine 1	1.5 hr/yr	221.0 g/kWh	999 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.02E-03	lb/hr	1.51E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.59E-04	lb/hr	1.19E-07	tpy
Main Drill Rig Engine 1	12 hr/yr	205.8 g/kWh	2480 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	4.66E-03	lb/hr	2.80E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.67E-04	lb/hr	2.20E-06	tpy
Main Drill Rig Engine 2	1195 hr/yr	205.8 g/kWh	2480 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	4.66E-03	lb/hr	2.78E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.67E-04	lb/hr	2.19E-04	tpy
Main Drill Rig Engine 2	10 hr/yr	217.0 g/kWh	1249 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.47E-03	lb/hr	1.24E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.95E-04	lb/hr	9.74E-07	tpy
Main Drill Rig Engine 2	6 hr/yr	358.0 g/kWh	256 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.37E-04	lb/hr	2.51E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.59E-05	lb/hr	1.98E-07	tpy
Main Drill Rig Engine 2	1.5 hr/yr	221.0 g/kWh	999 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.02E-03	lb/hr	1.51E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.59E-04	lb/hr	1.19E-07	tpy
Main Drill Rig Engine 3	12 hr/yr	205.8 g/kWh	2480 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	4.66E-03	lb/hr	2.80E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.67E-04	lb/hr	2.20E-06	tpy
Main Drill Rig Engine 3	1195 hr/yr	205.8 g/kWh	2480 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	4.66E-03	lb/hr	2.78E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.67E-04	lb/hr	2.19E-04	tpy
Main Drill Rig Engine 3	10 hr/yr	358.0 g/kWh	256 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.37E-04	lb/hr	4.18E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.59E-05	lb/hr	3.29E-07	tpy
Main Drill Rig Engine 3	6 hr/yr	358.0 g/kWh	256 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.37E-04	lb/hr	2.51E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.59E-05	lb/hr	1.98E-07	tpy
Main Drill Rig Engine 3	1.5 hr/yr	221.0 g/kWh	999 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.02E-03	lb/hr	1.51E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.59E-04	lb/hr	1.19E-07	tpy
Main Drill Rig Engine 4	1195 hr/yr	205.8 g/kWh	2480 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	4.66E-03	lb/hr	2.78E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.67E-04	lb/hr	2.19E-04	tpy
Emergency Back-up Engine	75 hr/yr	205.0 g/kWh	968 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.81E-03	lb/hr	6.80E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.43E-04	lb/hr	5.35E-06	tpy
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 kW	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.44E-04	lb/hr	4.22E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.38E-05	lb/hr	4.18E-06	tpy
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 kW	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.44E-04	lb/hr	4.22E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.38E-05	lb/hr	4.18E-06	tpy
Logging Winch	273 hr/yr	13.3 gal/hr	187 kW	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.95E-04	lb/hr	4.03E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	2.92E-05	lb/hr	3.99E-06	tpy
Heater 1	2400 hr/yr	26.5 gal/hr	4 MMBtu/hr*	3.68E-01	lbs/Mgal	CARB-CATEF	9.75E-03	lb/hr	1.17E-02	tpy	1.50E+01	lb/10^12 Btu	AP-42 1.3-10	5.25E-05	lb/hr	6.30E-05	tpy
Heater 2	2400 hr/yr	26.5 gal/hr	4 MMBtu/hr*	3.68E-01	lbs/Mgal	CARB-CATEF	9.75E-03	lb/hr	1.17E-02	tpy	1.50E+01	lb/10^12 Btu	AP-42 1.3-10	5.25E-05	lb/hr	6.30E-05	tpy
Incinerator	65 tons/yr	276.0 lbs/hr	N A	none							none						
Fuel Tank 1	2400 hrs/yr	473574.8 gal/yr**	N A	N A		EPA TANKS	4.17E-05	lb/hr	5.00E-05	tpy	none						
Fuel Tank 2	2400 hrs/yr	473574.8 gal/yr**	N A	N A		EPA TANKS	4.17E-05	lb/hr	5.00E-05	tpy	none						
Mud Degassing	100 days/yr	NA 0	20000 scf/day	none							none						
			*Heat input rate			Drill Rig Total	6.53E-02	lb/hr	3.49E-02	tpy			Drill Rig Total	3.74E-03	lb/hr	1.03E-03	tpy
Ice Breaker 1																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 hp	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.19E-02	lb/hr	4.02E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	9.38E-04	lb/hr	3.17E-04	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 hp	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.19E-02	lb/hr	4.02E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	9.38E-04	lb/hr	3.17E-04	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 hp	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.94E-03	lb/hr	3.02E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	7.04E-04	lb/hr	2.37E-04	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 hp	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.94E-03	lb/hr	3.02E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	7.04E-04	lb/hr	2.37E-04	tpy
Harbor Generator	8 hr/yr	50.5 gal/hr	952 hp	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.41E-03	lb/hr	5.64E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.11E-04	lb/hr	4.44E-07	tpy
Emergency Generator	8 hr/yr	21.3 gal/hr	402 hp	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	4.73E-04	lb/hr	1.89E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	4.69E-05	lb/hr	1.88E-07	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	3.68E-01	lbs/Mgal	CARB-CATEF	1.03E-02	lb/hr	3.48E-03	tpy	1.50E+01	lb/10^12 Btu	AP-42 1.3-10	5.55E-05	lb/hr	1.87E-05	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	3.68E-01	lbs/Mgal	CARB-CATEF	1.03E-02	lb/hr	3.48E-03	tpy	1.50E+01	lb/10^12 Btu	AP-42 1.3-10	5.55E-05	lb/hr	1.87E-05	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N A	none							none						
			*Heat input rate			Vessel Total	6.42E-02	lb/hr	2.10E-02	tpy			Vessel Total	3.55E-03	lb/hr	1.15E-03	tpy
Ice Breaker 2																	
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 hp	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.19E-02	lb/hr	4.02E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	9.38E-04	lb/hr	3.17E-04	tpy
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 hp	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.19E-02	lb/hr	4.02E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	9.38E-04	lb/hr	3.17E-04	tpy
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 hp	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.94E-03	lb/hr	3.02E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	7.04E-04	lb/hr	2.37E-04	tpy
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 hp	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.94E-03	lb/hr	3.02E-03	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	7.04E-04	lb/hr	2.37E-04	tpy
Harbor Generator	8 hr/yr	50.5 gal/hr	952 hp	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.41E-03	lb/hr	5.64E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.11E-04	lb/hr	4.44E-07	tpy
Emergency Generator	8 hr/yr	21.3 gal/hr	402 hp	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	4.73E-04	lb/hr	1.89E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	4.69E-05	lb/hr	1.88E-07	tpy
Boiler 1	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	3.68E-01	lbs/Mgal	CARB-CATEF	1.03E-02	lb/hr	3.48E-03	tpy	1.50E+01	lb/10^12 Btu	AP-42 1.3-10	5.55E-05	lb/hr	1.87E-05	tpy
Boiler 2	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	3.68E-01	lbs/Mgal	CARB-CATEF	1.03E-02	lb/hr	3.48E-03	tpy	1.50E+01	lb/10^12 Btu	AP-42 1.3-10	5.55E-05	lb/hr	1.87E-05	tpy
Incinerator	675 hr/yr	175.0 lb/hr	N A	none							none						
			*Heat input rate			Vessel Total	6.42E-02	lb/hr	2.10E-02	tpy			Vessel Total	3.55E-03	lb/hr	1.15E-03	tpy

Devil's Paw Prospect - Annual Emissions Inventory - HAPs

Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Total HAPs	
				Hourly Emission Rate (lb/hr)	Annual Emissions (tons/yr)
Drill Rig Equipment					
Main Drill Rig Engine 1	1195 hr/yr	205.8 g/kWh	2480 kW	1.24E-01	7.39E-02
Main Drill Rig Engine 1	10 hr/yr	217.0 g/kWh	1249 kW	6.57E-02	3.28E-04
Main Drill Rig Engine 1	6 hr/yr	358.0 g/kWh	256 kW	2.22E-02	6.66E-05
Main Drill Rig Engine 1	1.5 hr/yr	221.0 g/kWh	999 kW	5.35E-02	4.01E-05
Main Drill Rig Engine 1	12 hr/yr	205.8 g/kWh	2480 kW	1.24E-01	7.42E-04
Main Drill Rig Engine 2	1195 hr/yr	205.8 g/kWh	2480 kW	1.24E-01	7.39E-02
Main Drill Rig Engine 2	10 hr/yr	217.0 g/kWh	1249 kW	6.57E-02	3.28E-04
Main Drill Rig Engine 2	6 hr/yr	358.0 g/kWh	256 kW	2.22E-02	6.66E-05
Main Drill Rig Engine 2	1.5 hr/yr	221.0 g/kWh	999 kW	5.35E-02	4.01E-05
Main Drill Rig Engine 3	12 hr/yr	205.8 g/kWh	2480 kW	1.24E-01	7.42E-04
Main Drill Rig Engine 3	1195 hr/yr	205.8 g/kWh	2480 kW	1.24E-01	7.39E-02
Main Drill Rig Engine 3	10 hr/yr	358.0 g/kWh	256 kW	2.22E-02	1.11E-04
Main Drill Rig Engine 3	6 hr/yr	358.0 g/kWh	256 kW	2.22E-02	6.66E-05
Main Drill Rig Engine 3	1.5 hr/yr	221.0 g/kWh	999 kW	5.35E-02	4.01E-05
Main Drill Rig Engine 4	1195 hr/yr	205.8 g/kWh	2480 kW	1.24E-01	7.39E-02
Emergency Back-up Engine	75 hr/yr	205.0 g/kWh	968 kW	4.81E-02	1.80E-03
Cement Engine 1	131 hr/yr	29.0 gal/hr	403 kW	2.36E-02	1.54E-03
Cement Engine 2	131 hr/yr	29.0 gal/hr	403 kW	2.36E-02	1.54E-03
Logging Winch	273 hr/yr	13.3 gal/hr	187 kW	1.08E-02	1.47E-03
Heater 1	2400 hr/yr	26.5 gal/hr	4 MMBtu/hr*	5.30E-02	6.36E-02
Heater 2	2400 hr/yr	26.5 gal/hr	4 MMBtu/hr*	5.30E-02	6.36E-02
Incinerator	65 tons/yr	276.0 lbs/hr	N A	9.18E-01	4.86E-01
Fuel Tank 1	2400 hrs/yr	473574.8 gal/yr**	N A	1.54E-04	1.85E-04
Fuel Tank 2	2400 hrs/yr	473574.8 gal/yr**	N A	1.50E-04	1.80E-04
Mud Degassing	100 days/yr	NA 0	20000 scf/day	0.00E+00	0.00E+00
			*Heat input rate	2.25E+00	9.18E-01
Ice Breaker 1					
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 hp	3.16E-01	1.07E-01
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 hp	3.16E-01	1.07E-01
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 hp	2.37E-01	8.01E-02
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 hp	2.37E-01	8.01E-02
Harbor Generator	8 hr/yr	50.5 gal/hr	952 hp	3.74E-02	1.50E-04
Emergency Generator	8 hr/yr	21.3 gal/hr	402 hp	1.73E-02	6.93E-05
Boiler 1	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	5.60E-02	1.89E-02
Boiler 2	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	5.60E-02	1.89E-02
Incinerator	675 hr/yr	175.0 lb/hr	N A	5.82E-01	5.27E-01
			*Heat input rate	1.86E+00	9.39E-01
Ice Breaker 2					
Main Engine 1	675 hr/yr	426.4 gal/hr	8046 hp	3.16E-01	1.07E-01
Main Engine 2	675 hr/yr	426.4 gal/hr	8046 hp	3.16E-01	1.07E-01
Main Engine 3	675 hr/yr	319.8 gal/hr	6035 hp	2.37E-01	8.01E-02
Main Engine 4	675 hr/yr	319.8 gal/hr	6035 hp	2.37E-01	8.01E-02
Harbor Generator	8 hr/yr	50.5 gal/hr	952 hp	3.74E-02	1.50E-04
Emergency Generator	8 hr/yr	21.3 gal/hr	402 hp	1.73E-02	6.93E-05
Boiler 1	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	5.60E-02	1.89E-02
Boiler 2	675 hr/yr	28.0 gal/hr	4 MMBtu/hr*	5.60E-02	1.89E-02
Incinerator	675 hr/yr	175.0 lb/hr	N A	5.82E-01	5.27E-01
			*Heat input rate	1.86E+00	9.39E-01

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					Acetaldehyde							Acrolein						
	Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
	Anchor Handler Tug Supply Vessel (AHTS)																	
0	Main Engine 1	0.08 hr/yr	99.4 gal/hr	1400 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	1.06E-02	lb/hr	4.26E-07	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	1.29E-03	lb/hr	5.17E-08	tpy
0	Main Engine 2	0.08 hr/yr	99.4 gal/hr	1400 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	1.06E-02	lb/hr	4.26E-07	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	1.29E-03	lb/hr	5.17E-08	tpy
0	Main Engine 1	9 hr/yr	71.0 gal/hr	1000 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	7.60E-03	lb/hr	3.42E-05	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	9.23E-04	lb/hr	4.16E-06	tpy
0	Main Engine 2	9 hr/yr	71.0 gal/hr	1000 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	7.60E-03	lb/hr	3.42E-05	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	9.23E-04	lb/hr	4.16E-06	tpy
0	Tow Winch Engine	9 hr/yr	10.7 gal/hr	150 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	1.14E-03	lb/hr	5.13E-06	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	1.39E-04	lb/hr	6.23E-07	tpy
0	Thruster Engine 1	9 hr/yr	26.6 gal/hr	375 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	2.85E-03	lb/hr	1.28E-05	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	3.46E-04	lb/hr	1.56E-06	tpy
0	Thruster Engine 2	9 hr/yr	26.6 gal/hr	375 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	2.85E-03	lb/hr	1.28E-05	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	3.46E-04	lb/hr	1.56E-06	tpy
0	Generator 1	1196 hr/yr	17.8 gal/hr	250 kW	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.80E-03	lb/hr	1.08E-03	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	2.17E-04	lb/hr	1.30E-04	tpy
0	Generator 1	9 hr/yr	21.3 gal/hr	300 kW	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.16E-03	lb/hr	9.72E-06	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	2.60E-04	lb/hr	1.17E-06	tpy
0	Generator 1	0.08 hr/yr	17.8 gal/hr	250 kW	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.80E-03	lb/hr	7.20E-08	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	2.17E-04	lb/hr	8.68E-09	tpy
0	Generator 2	1196 hr/yr	10.7 gal/hr	150 kW	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.08E-03	lb/hr	6.46E-04	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.30E-04	lb/hr	7.79E-05	tpy
0	Emergency Generator	8 hr/yr	19.6 gal/hr	276 hp	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.99E-03	lb/hr	7.95E-06	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	2.40E-04	lb/hr	9.58E-07	tpy
							Vessel Total	5.21E-02	lb/hr	1.84E-03	tpy			Vessel Total	6.33E-03	lb/hr	2.22E-04	tpy
	Oil Spill Response Vessel 1 (Dedicated OSRV)																	
0	Main Engine 1	864 hr/yr	77.5 gal/hr	-- --	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	8.29E-03	lb/hr	3.58E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	1.01E-03	lb/hr	4.35E-04	tpy
0	Main Engine 2	864 hr/yr	77.5 gal/hr	-- --	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	8.29E-03	lb/hr	3.58E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	1.01E-03	lb/hr	4.35E-04	tpy
0	Thruster Engine 1	36 hr/yr	11.6 gal/hr	1100 hp	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	6.24E-03	lb/hr	1.12E-04	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	7.58E-04	lb/hr	1.36E-05	tpy
0	Thruster Engine 2	36 hr/yr	10.6 gal/hr	1100 hp	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	6.24E-03	lb/hr	1.12E-04	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	7.58E-04	lb/hr	1.36E-05	tpy
0	Thruster Engine 3	36 hr/yr	7.1 gal/hr	1100 hp	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	6.24E-03	lb/hr	1.12E-04	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	7.58E-04	lb/hr	1.36E-05	tpy
0	Generator 1	1164 hr/yr	11.5 gal/hr	710 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	5.40E-03	lb/hr	3.14E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	6.56E-04	lb/hr	3.82E-04	tpy
0	Generator 1	36 hr/yr	11.5 gal/hr	710 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	5.40E-03	lb/hr	9.71E-05	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	6.56E-04	lb/hr	1.18E-05	tpy
0	Generator 2	1164 hr/yr	11.5 gal/hr	710 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	5.40E-03	lb/hr	3.14E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	6.56E-04	lb/hr	3.82E-04	tpy
0	Generator 2	36 hr/yr	11.5 gal/hr	710 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	5.40E-03	lb/hr	9.71E-05	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	6.56E-04	lb/hr	1.18E-05	tpy
0	Emergency Generator	8 hr/yr	14.8 gal/hr	279 hp	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.50E-03	lb/hr	5.99E-06	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.81E-04	lb/hr	7.23E-07	tpy
							Vessel Total	5.84E-02	lb/hr	1.40E-02	tpy			Vessel Total	7.09E-03	lb/hr	1.70E-03	tpy
	Oil Spill Response Vessel 2																	
0	Main Engine 1	60 hr/yr	77.5 gal/hr	-- --	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	8.29E-03	lb/hr	2.49E-04	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	1.01E-03	lb/hr	3.02E-05	tpy
0	Main Engine 2	60 hr/yr	77.5 gal/hr	-- --	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	8.29E-03	lb/hr	2.49E-04	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	1.01E-03	lb/hr	3.02E-05	tpy
0	Thruster Engine 1	0 hr/yr	0.0 gal/hr	0 hp	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy
0	Thruster Engine 2	0 hr/yr	0.0 gal/hr	0 hp	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy
0	Thruster Engine 3	0 hr/yr	0.0 gal/hr	0 hp	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy
0	Generator 1	30 hr/yr	11.5 gal/hr	710 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	5.40E-03	lb/hr	8.09E-05	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	6.56E-04	lb/hr	9.83E-06	tpy
0	Generator 2	30 hr/yr	11.5 gal/hr	710 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	5.40E-03	lb/hr	8.09E-05	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	6.56E-04	lb/hr	9.83E-06	tpy
0	Emergency Generator	8 hr/yr	14.8 gal/hr	279 hp	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.50E-03	lb/hr	5.99E-06	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.81E-04	lb/hr	7.23E-07	tpy
							Vessel Total	2.89E-02	lb/hr	6.65E-04	tpy			Vessel Total	3.51E-03	lb/hr	8.08E-05	tpy

Devil's Paw Prospect - Annual Emissions Inventory - HAPs

					Benzene						1,3-Butadiene					
Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handler Tug Supply Vessel (AHTS)																	
0 Main Engine 1	0.08 hr/yr	99.4 gal/hr	1400 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.02E-02	lb/hr	4.08E-07	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	5.38E-04	lb/hr	2.15E-08	tpy
0 Main Engine 2	0.08 hr/yr	99.4 gal/hr	1400 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.02E-02	lb/hr	4.08E-07	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	5.38E-04	lb/hr	2.15E-08	tpy
0 Main Engine 1	9 hr/yr	71.0 gal/hr	1000 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	7.28E-03	lb/hr	3.28E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.84E-04	lb/hr	1.73E-06	tpy
0 Main Engine 2	9 hr/yr	71.0 gal/hr	1000 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	7.28E-03	lb/hr	3.28E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.84E-04	lb/hr	1.73E-06	tpy
0 Tow Winch Engine	9 hr/yr	10.7 gal/hr	150 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.09E-03	lb/hr	4.92E-06	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	5.76E-05	lb/hr	2.59E-07	tpy
0 Thruster Engine 1	9 hr/yr	26.6 gal/hr	375 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.73E-03	lb/hr	1.23E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.44E-04	lb/hr	6.49E-07	tpy
0 Thruster Engine 2	9 hr/yr	26.6 gal/hr	375 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.73E-03	lb/hr	1.23E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.44E-04	lb/hr	6.49E-07	tpy
0 Generator 1	1196 hr/yr	17.8 gal/hr	250 kW	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.19E-03	lb/hr	1.31E-03	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	9.17E-05	lb/hr	5.49E-05	tpy
0 Generator 1	9 hr/yr	21.3 gal/hr	300 kW	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.63E-03	lb/hr	1.18E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.10E-04	lb/hr	4.95E-07	tpy
0 Generator 1	0.08 hr/yr	17.8 gal/hr	250 kW	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.19E-03	lb/hr	8.75E-08	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	9.17E-05	lb/hr	3.67E-09	tpy
0 Generator 2	1196 hr/yr	10.7 gal/hr	150 kW	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.31E-03	lb/hr	7.85E-04	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	5.50E-05	lb/hr	3.29E-05	tpy
0 Emergency Generator	8 hr/yr	19.6 gal/hr	276 hp	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.42E-03	lb/hr	9.67E-06	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.01E-04	lb/hr	4.05E-07	tpy
						Vessel Total	5.22E-02	lb/hr	2.21E-03	tpy			Vessel Total	2.64E-03	lb/hr	9.37E-05	tpy
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
0 Main Engine 1	864 hr/yr	77.5 gal/hr	-- --	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	7.94E-03	lb/hr	3.43E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.19E-04	lb/hr	1.81E-04	tpy
0 Main Engine 2	864 hr/yr	77.5 gal/hr	-- --	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	7.94E-03	lb/hr	3.43E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.19E-04	lb/hr	1.81E-04	tpy
0 Thruster Engine 1	36 hr/yr	11.6 gal/hr	1100 hp	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	5.98E-03	lb/hr	1.08E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.15E-04	lb/hr	5.68E-06	tpy
0 Thruster Engine 2	36 hr/yr	10.6 gal/hr	1100 hp	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	5.98E-03	lb/hr	1.08E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.15E-04	lb/hr	5.68E-06	tpy
0 Thruster Engine 3	36 hr/yr	7.1 gal/hr	1100 hp	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	5.98E-03	lb/hr	1.08E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.15E-04	lb/hr	5.68E-06	tpy
0 Generator 1	1164 hr/yr	11.5 gal/hr	710 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	5.17E-03	lb/hr	3.01E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.73E-04	lb/hr	1.59E-04	tpy
0 Generator 1	36 hr/yr	11.5 gal/hr	710 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	5.17E-03	lb/hr	9.31E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.73E-04	lb/hr	4.91E-06	tpy
0 Generator 2	1164 hr/yr	11.5 gal/hr	710 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	5.17E-03	lb/hr	3.01E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.73E-04	lb/hr	1.59E-04	tpy
0 Generator 2	36 hr/yr	11.5 gal/hr	710 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	5.17E-03	lb/hr	9.31E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.73E-04	lb/hr	4.91E-06	tpy
0 Emergency Generator	8 hr/yr	14.8 gal/hr	279 hp	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.82E-03	lb/hr	7.29E-06	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	7.64E-05	lb/hr	3.05E-07	tpy
						Vessel Total	5.63E-02	lb/hr	1.34E-02	tpy			Vessel Total	2.95E-03	lb/hr	7.07E-04	tpy
Oil Spill Response Vessel 2																	
0 Main Engine 1	60 hr/yr	77.5 gal/hr	-- --	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	7.94E-03	lb/hr	2.38E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.19E-04	lb/hr	1.26E-05	tpy
0 Main Engine 2	60 hr/yr	77.5 gal/hr	-- --	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	7.94E-03	lb/hr	2.38E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.19E-04	lb/hr	1.26E-05	tpy
0 Thruster Engine 1	0 hr/yr	0.0 gal/hr	0 hp	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	0.00E+00	lb/hr	0.00E+00	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy
0 Thruster Engine 2	0 hr/yr	0.0 gal/hr	0 hp	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	0.00E+00	lb/hr	0.00E+00	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy
0 Thruster Engine 3	0 hr/yr	0.0 gal/hr	0 hp	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	0.00E+00	lb/hr	0.00E+00	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy
0 Generator 1	30 hr/yr	11.5 gal/hr	710 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	5.17E-03	lb/hr	7.75E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.73E-04	lb/hr	4.09E-06	tpy
0 Generator 2	30 hr/yr	11.5 gal/hr	710 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	5.17E-03	lb/hr	7.75E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.73E-04	lb/hr	4.09E-06	tpy
0 Emergency Generator	8 hr/yr	14.8 gal/hr	279 hp	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.82E-03	lb/hr	7.29E-06	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	7.64E-05	lb/hr	3.05E-07	tpy
						Vessel Total	2.81E-02	lb/hr	6.39E-04	tpy			Vessel Total	1.46E-03	lb/hr	3.36E-05	tpy

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				Chlorobenzene							Ethylbenzene						
Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handler Tug Supply Vessel (AHTS)																	
Main Engine 1	0.08 hr/yr	99.4 gal/hr	1400 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.99E-05	lb/hr	7.96E-10	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.08E-03	lb/hr	4.34E-08	tpy
Main Engine 2	0.08 hr/yr	99.4 gal/hr	1400 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.99E-05	lb/hr	7.96E-10	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.08E-03	lb/hr	4.34E-08	tpy
Main Engine 1	9 hr/yr	71.0 gal/hr	1000 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.42E-05	lb/hr	6.39E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	7.74E-04	lb/hr	3.48E-06	tpy
Main Engine 2	9 hr/yr	71.0 gal/hr	1000 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.42E-05	lb/hr	6.39E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	7.74E-04	lb/hr	3.48E-06	tpy
Tow Winch Engine	9 hr/yr	10.7 gal/hr	150 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	2.13E-06	lb/hr	9.59E-09	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.16E-04	lb/hr	5.23E-07	tpy
Thruster Engine 1	9 hr/yr	26.6 gal/hr	375 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.33E-06	lb/hr	2.40E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.90E-04	lb/hr	1.31E-06	tpy
Thruster Engine 2	9 hr/yr	26.6 gal/hr	375 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.33E-06	lb/hr	2.40E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.90E-04	lb/hr	1.31E-06	tpy
Generator 1	1196 hr/yr	17.8 gal/hr	250 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.55E-06	lb/hr	2.12E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.94E-04	lb/hr	1.16E-04	tpy
Generator 1	9 hr/yr	21.3 gal/hr	300 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	4.26E-06	lb/hr	1.92E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.32E-04	lb/hr	1.05E-06	tpy
Generator 1	0.08 hr/yr	17.8 gal/hr	250 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.55E-06	lb/hr	1.42E-10	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.94E-04	lb/hr	7.74E-09	tpy
Generator 2	1196 hr/yr	10.7 gal/hr	150 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	2.13E-06	lb/hr	1.27E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.16E-04	lb/hr	6.95E-05	tpy
Emergency Generator	8 hr/yr	19.6 gal/hr	276 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.92E-06	lb/hr	1.57E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.14E-04	lb/hr	8.55E-07	tpy
						Vessel Total	9.84E-05	lb/hr	3.62E-06	tpy			Vessel Total	5.36E-03	lb/hr	1.97E-04	tpy
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
Main Engine 1	864 hr/yr	77.5 gal/hr	-- --	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.55E-05	lb/hr	6.70E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.45E-04	lb/hr	3.65E-04	tpy
Main Engine 2	864 hr/yr	77.5 gal/hr	-- --	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.55E-05	lb/hr	6.70E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.45E-04	lb/hr	3.65E-04	tpy
Thruster Engine 1	36 hr/yr	11.6 gal/hr	1100 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.17E-05	lb/hr	2.10E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	6.35E-04	lb/hr	1.14E-05	tpy
Thruster Engine 2	36 hr/yr	10.6 gal/hr	1100 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.17E-05	lb/hr	2.10E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	6.35E-04	lb/hr	1.14E-05	tpy
Thruster Engine 3	36 hr/yr	7.1 gal/hr	1100 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.17E-05	lb/hr	2.10E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	6.35E-04	lb/hr	1.14E-05	tpy
Generator 1	1164 hr/yr	11.5 gal/hr	710 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.01E-05	lb/hr	5.87E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	5.50E-04	lb/hr	3.20E-04	tpy
Generator 1	36 hr/yr	11.5 gal/hr	710 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.01E-05	lb/hr	1.82E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	5.50E-04	lb/hr	9.90E-06	tpy
Generator 2	1164 hr/yr	11.5 gal/hr	710 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.01E-05	lb/hr	5.87E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	5.50E-04	lb/hr	3.20E-04	tpy
Generator 2	36 hr/yr	11.5 gal/hr	710 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.01E-05	lb/hr	1.82E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	5.50E-04	lb/hr	9.90E-06	tpy
Emergency Generator	8 hr/yr	14.8 gal/hr	279 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	2.96E-06	lb/hr	1.18E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.61E-04	lb/hr	6.45E-07	tpy
						Vessel Total	1.09E-04	lb/hr	2.61E-05	tpy			Vessel Total	5.96E-03	lb/hr	1.42E-03	tpy
Oil Spill Response Vessel 2																	
Main Engine 1	60 hr/yr	77.5 gal/hr	-- --	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.55E-05	lb/hr	4.65E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.45E-04	lb/hr	2.53E-05	tpy
Main Engine 2	60 hr/yr	77.5 gal/hr	-- --	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.55E-05	lb/hr	4.65E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.45E-04	lb/hr	2.53E-05	tpy
Thruster Engine 1	0 hr/yr	0.0 gal/hr	0 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
Thruster Engine 2	0 hr/yr	0.0 gal/hr	0 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
Thruster Engine 3	0 hr/yr	0.0 gal/hr	0 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
Generator 1	30 hr/yr	11.5 gal/hr	710 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.01E-05	lb/hr	1.51E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	5.50E-04	lb/hr	8.25E-06	tpy
Generator 2	30 hr/yr	11.5 gal/hr	710 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.01E-05	lb/hr	1.51E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	5.50E-04	lb/hr	8.25E-06	tpy
Emergency Generator	8 hr/yr	14.8 gal/hr	279 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	2.96E-06	lb/hr	1.18E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.61E-04	lb/hr	6.45E-07	tpy
						Vessel Total	5.41E-05	lb/hr	1.24E-06	tpy			Vessel Total	2.95E-03	lb/hr	6.78E-05	tpy

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Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Formaldehyde							Hexane						
				Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handler Tug Supply Vessel (AHTS)																	
Main Engine 1	0.08 hr/yr	99.4 gal/hr	1400 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.15E-02	lb/hr	4.61E-07	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.68E-03	lb/hr	1.07E-07	tpy
Main Engine 2	0.08 hr/yr	99.4 gal/hr	1400 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.15E-02	lb/hr	4.61E-07	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.68E-03	lb/hr	1.07E-07	tpy
Main Engine 1	9 hr/yr	71.0 gal/hr	1000 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	8.24E-03	lb/hr	3.71E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.91E-03	lb/hr	8.60E-06	tpy
Main Engine 2	9 hr/yr	71.0 gal/hr	1000 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	8.24E-03	lb/hr	3.71E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.91E-03	lb/hr	8.60E-06	tpy
Tow Winch Engine	9 hr/yr	10.7 gal/hr	150 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.24E-03	lb/hr	5.56E-06	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.87E-04	lb/hr	1.29E-06	tpy
Thruster Engine 1	9 hr/yr	26.6 gal/hr	375 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.09E-03	lb/hr	1.39E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.17E-04	lb/hr	3.22E-06	tpy
Thruster Engine 2	9 hr/yr	26.6 gal/hr	375 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.09E-03	lb/hr	1.39E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.17E-04	lb/hr	3.22E-06	tpy
Generator 1	1196 hr/yr	17.8 gal/hr	250 kW	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	2.77E-03	lb/hr	1.66E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.78E-04	lb/hr	2.86E-04	tpy
Generator 1	9 hr/yr	21.3 gal/hr	300 kW	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	3.32E-03	lb/hr	1.49E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	5.73E-04	lb/hr	2.58E-06	tpy
Generator 1	0.08 hr/yr	17.8 gal/hr	250 kW	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	2.77E-03	lb/hr	1.11E-07	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.78E-04	lb/hr	1.91E-08	tpy
Generator 2	1196 hr/yr	10.7 gal/hr	150 kW	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	1.66E-03	lb/hr	9.93E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.87E-04	lb/hr	1.71E-04	tpy
Emergency Generator	8 hr/yr	19.6 gal/hr	276 hp	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	3.06E-03	lb/hr	1.22E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	5.27E-04	lb/hr	2.11E-06	tpy
						Vessel Total	6.05E-02	lb/hr	2.78E-03	tpy			Vessel Total	1.32E-02	lb/hr	4.87E-04	tpy
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
Main Engine 1	864 hr/yr	77.5 gal/hr	-- --	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	8.99E-03	lb/hr	3.88E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.08E-03	lb/hr	9.01E-04	tpy
Main Engine 2	864 hr/yr	77.5 gal/hr	-- --	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	8.99E-03	lb/hr	3.88E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.08E-03	lb/hr	9.01E-04	tpy
Thruster Engine 1	36 hr/yr	11.6 gal/hr	1100 hp	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	6.76E-03	lb/hr	1.22E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.57E-03	lb/hr	2.82E-05	tpy
Thruster Engine 2	36 hr/yr	10.6 gal/hr	1100 hp	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	6.76E-03	lb/hr	1.22E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.57E-03	lb/hr	2.82E-05	tpy
Thruster Engine 3	36 hr/yr	7.1 gal/hr	1100 hp	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	6.76E-03	lb/hr	1.22E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.57E-03	lb/hr	2.82E-05	tpy
Generator 1	1164 hr/yr	11.5 gal/hr	710 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	5.85E-03	lb/hr	3.40E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.36E-03	lb/hr	7.90E-04	tpy
Generator 1	36 hr/yr	11.5 gal/hr	710 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	5.85E-03	lb/hr	1.05E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.36E-03	lb/hr	2.44E-05	tpy
Generator 2	1164 hr/yr	11.5 gal/hr	710 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	5.85E-03	lb/hr	3.40E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.36E-03	lb/hr	7.90E-04	tpy
Generator 2	36 hr/yr	11.5 gal/hr	710 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	5.85E-03	lb/hr	1.05E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.36E-03	lb/hr	2.44E-05	tpy
Emergency Generator	8 hr/yr	14.8 gal/hr	279 hp	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	2.30E-03	lb/hr	9.22E-06	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	3.98E-04	lb/hr	1.59E-06	tpy
						Vessel Total	6.40E-02	lb/hr	1.52E-02	tpy			Vessel Total	1.47E-02	lb/hr	3.52E-03	tpy
Oil Spill Response Vessel 2																	
Main Engine 1	60 hr/yr	77.5 gal/hr	-- --	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	8.99E-03	lb/hr	2.70E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.08E-03	lb/hr	6.25E-05	tpy
Main Engine 2	60 hr/yr	77.5 gal/hr	-- --	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	8.99E-03	lb/hr	2.70E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.08E-03	lb/hr	6.25E-05	tpy
Thruster Engine 1	0 hr/yr	0.0 gal/hr	0 hp	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
Thruster Engine 2	0 hr/yr	0.0 gal/hr	0 hp	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
Thruster Engine 3	0 hr/yr	0.0 gal/hr	0 hp	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
Generator 1	30 hr/yr	11.5 gal/hr	710 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	5.85E-03	lb/hr	8.78E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.36E-03	lb/hr	2.04E-05	tpy
Generator 2	30 hr/yr	11.5 gal/hr	710 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	5.85E-03	lb/hr	8.78E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.36E-03	lb/hr	2.04E-05	tpy
Emergency Generator	8 hr/yr	14.8 gal/hr	279 hp	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	2.30E-03	lb/hr	9.22E-06	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	3.98E-04	lb/hr	1.59E-06	tpy
						Vessel Total	3.20E-02	lb/hr	7.24E-04	tpy			Vessel Total	7.28E-03	lb/hr	1.67E-04	tpy

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				Hydrochloric acid (Hydrogen Chloride)							Naphthalene						
Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handler Tug Supply Vessel (AHTS)																	
Main Engine 1	0.08 hr/yr	99.4 gal/hr	1400 kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.85E-02	lb/hr	7.41E-07	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.71E-03	lb/hr	6.83E-08	tpy
Main Engine 2	0.08 hr/yr	99.4 gal/hr	1400 kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.85E-02	lb/hr	7.41E-07	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.71E-03	lb/hr	6.83E-08	tpy
Main Engine 1	9 hr/yr	71.0 gal/hr	1000 kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.32E-02	lb/hr	5.96E-05	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.22E-03	lb/hr	5.49E-06	tpy
Main Engine 2	9 hr/yr	71.0 gal/hr	1000 kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.32E-02	lb/hr	5.96E-05	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.22E-03	lb/hr	5.49E-06	tpy
Tow Winch Engine	9 hr/yr	10.7 gal/hr	150 kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.99E-03	lb/hr	8.93E-06	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.83E-04	lb/hr	8.23E-07	tpy
Thruster Engine 1	9 hr/yr	26.6 gal/hr	375 kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	4.96E-03	lb/hr	2.23E-05	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	4.57E-04	lb/hr	2.06E-06	tpy
Thruster Engine 2	9 hr/yr	26.6 gal/hr	375 kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	4.96E-03	lb/hr	2.23E-05	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	4.57E-04	lb/hr	2.06E-06	tpy
Generator 1	1196 hr/yr	17.8 gal/hr	250 kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	3.31E-03	lb/hr	1.98E-03	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.99E-04	lb/hr	1.19E-04	tpy
Generator 1	9 hr/yr	21.3 gal/hr	300 kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	3.97E-03	lb/hr	1.79E-05	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	2.39E-04	lb/hr	1.07E-06	tpy
Generator 1	0.08 hr/yr	17.8 gal/hr	250 kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	3.31E-03	lb/hr	1.32E-07	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.99E-04	lb/hr	7.96E-09	tpy
Generator 2	1196 hr/yr	10.7 gal/hr	150 kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.99E-03	lb/hr	1.19E-03	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.19E-04	lb/hr	7.14E-05	tpy
Emergency Generator	8 hr/yr	19.6 gal/hr	276 hp	1.41E-03	lb/MMBtu fuel input	VCAPCD	3.65E-03	lb/hr	1.46E-05	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	2.20E-04	lb/hr	8.78E-07	tpy
						Vessel Total	9.17E-02	lb/hr	3.37E-03	tpy			Vessel Total	7.93E-03	lb/hr	2.08E-04	tpy
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
Main Engine 1	864 hr/yr	77.5 gal/hr	-- --	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.44E-02	lb/hr	6.24E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.33E-03	lb/hr	5.75E-04	tpy
Main Engine 2	864 hr/yr	77.5 gal/hr	-- --	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.44E-02	lb/hr	6.24E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.33E-03	lb/hr	5.75E-04	tpy
Thruster Engine 1	36 hr/yr	11.6 gal/hr	1100 hp	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.09E-02	lb/hr	1.95E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.00E-03	lb/hr	1.80E-05	tpy
Thruster Engine 2	36 hr/yr	10.6 gal/hr	1100 hp	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.09E-02	lb/hr	1.95E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.00E-03	lb/hr	1.80E-05	tpy
Thruster Engine 3	36 hr/yr	7.1 gal/hr	1100 hp	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.09E-02	lb/hr	1.95E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.00E-03	lb/hr	1.80E-05	tpy
Generator 1	1164 hr/yr	11.5 gal/hr	710 kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	9.40E-03	lb/hr	5.47E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.66E-04	lb/hr	5.04E-04	tpy
Generator 1	36 hr/yr	11.5 gal/hr	710 kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	9.40E-03	lb/hr	1.69E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.66E-04	lb/hr	1.56E-05	tpy
Generator 2	1164 hr/yr	11.5 gal/hr	710 kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	9.40E-03	lb/hr	5.47E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.66E-04	lb/hr	5.04E-04	tpy
Generator 2	36 hr/yr	11.5 gal/hr	710 kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	9.40E-03	lb/hr	1.69E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.66E-04	lb/hr	1.56E-05	tpy
Emergency Generator	8 hr/yr	14.8 gal/hr	279 hp	1.41E-03	lb/MMBtu fuel input	VCAPCD	2.75E-03	lb/hr	1.10E-05	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.66E-04	lb/hr	6.62E-07	tpy
						Vessel Total	1.02E-01	lb/hr	2.43E-02	tpy			Vessel Total	9.29E-03	lb/hr	2.24E-03	tpy
Oil Spill Response Vessel 2																	
Main Engine 1	60 hr/yr	77.5 gal/hr	-- --	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.44E-02	lb/hr	4.33E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.33E-03	lb/hr	3.99E-05	tpy
Main Engine 2	60 hr/yr	77.5 gal/hr	-- --	1.41E-03	lb/MMBtu fuel input	VCAPCD	1.44E-02	lb/hr	4.33E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.33E-03	lb/hr	3.99E-05	tpy
Thruster Engine 1	0 hr/yr	0.0 gal/hr	0 hp	1.41E-03	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	0.00E+00	lb/hr	0.00E+00	tpy
Thruster Engine 2	0 hr/yr	0.0 gal/hr	0 hp	1.41E-03	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	0.00E+00	lb/hr	0.00E+00	tpy
Thruster Engine 3	0 hr/yr	0.0 gal/hr	0 hp	1.41E-03	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	0.00E+00	lb/hr	0.00E+00	tpy
Generator 1	30 hr/yr	11.5 gal/hr	710 kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	9.40E-03	lb/hr	1.41E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.66E-04	lb/hr	1.30E-05	tpy
Generator 2	30 hr/yr	11.5 gal/hr	710 kW	1.41E-03	lb/MMBtu fuel input	VCAPCD	9.40E-03	lb/hr	1.41E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.66E-04	lb/hr	1.30E-05	tpy
Emergency Generator	8 hr/yr	14.8 gal/hr	279 hp	1.41E-03	lb/MMBtu fuel input	VCAPCD	2.75E-03	lb/hr	1.10E-05	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.66E-04	lb/hr	6.62E-07	tpy
						Vessel Total	5.04E-02	lb/hr	1.16E-03	tpy			Vessel Total	4.56E-03	lb/hr	1.06E-04	tpy

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				Toluene							Xylenes (mixed isomers)						
Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handler Tug Supply Vessel (AHTS)																	
Main Engine 1	0.08 hr/yr	99.4 gal/hr	1400 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.69E-03	lb/hr	1.48E-07	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.54E-03	lb/hr	1.01E-07	tpy
Main Engine 2	0.08 hr/yr	99.4 gal/hr	1400 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.69E-03	lb/hr	1.48E-07	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.54E-03	lb/hr	1.01E-07	tpy
Main Engine 1	9 hr/yr	71.0 gal/hr	1000 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.64E-03	lb/hr	1.19E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.81E-03	lb/hr	8.15E-06	tpy
Main Engine 2	9 hr/yr	71.0 gal/hr	1000 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.64E-03	lb/hr	1.19E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.81E-03	lb/hr	8.15E-06	tpy
Tow Winch Engine	9 hr/yr	10.7 gal/hr	150 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.96E-04	lb/hr	1.78E-06	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.72E-04	lb/hr	1.22E-06	tpy
Thruster Engine 1	9 hr/yr	26.6 gal/hr	375 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	9.89E-04	lb/hr	4.45E-06	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	6.79E-04	lb/hr	3.06E-06	tpy
Thruster Engine 2	9 hr/yr	26.6 gal/hr	375 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	9.89E-04	lb/hr	4.45E-06	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	6.79E-04	lb/hr	3.06E-06	tpy
Generator 1	1196 hr/yr	17.8 gal/hr	250 kW	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	9.59E-04	lb/hr	5.74E-04	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.69E-04	lb/hr	4.00E-04	tpy
Generator 1	9 hr/yr	21.3 gal/hr	300 kW	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.15E-03	lb/hr	5.18E-06	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	8.02E-04	lb/hr	3.61E-06	tpy
Generator 1	0.08 hr/yr	17.8 gal/hr	250 kW	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	9.59E-04	lb/hr	3.84E-08	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.69E-04	lb/hr	2.67E-08	tpy
Generator 2	1196 hr/yr	10.7 gal/hr	150 kW	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.76E-04	lb/hr	3.44E-04	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	4.01E-04	lb/hr	2.40E-04	tpy
Emergency Generator	8 hr/yr	19.6 gal/hr	276 hp	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.06E-03	lb/hr	4.24E-06	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	7.38E-04	lb/hr	2.95E-06	tpy
						Vessel Total	1.97E-02	lb/hr	9.62E-04	tpy			Vessel Total	1.36E-02	lb/hr	6.70E-04	tpy
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
Main Engine 1	864 hr/yr	77.5 gal/hr	-- --	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.88E-03	lb/hr	1.24E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.98E-03	lb/hr	8.54E-04	tpy
Main Engine 2	864 hr/yr	77.5 gal/hr	-- --	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.88E-03	lb/hr	1.24E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.98E-03	lb/hr	8.54E-04	tpy
Thruster Engine 1	36 hr/yr	11.6 gal/hr	1100 hp	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.16E-03	lb/hr	3.89E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.49E-03	lb/hr	2.67E-05	tpy
Thruster Engine 2	36 hr/yr	10.6 gal/hr	1100 hp	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.16E-03	lb/hr	3.89E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.49E-03	lb/hr	2.67E-05	tpy
Thruster Engine 3	36 hr/yr	7.1 gal/hr	1100 hp	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.16E-03	lb/hr	3.89E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.49E-03	lb/hr	2.67E-05	tpy
Generator 1	1164 hr/yr	11.5 gal/hr	710 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.87E-03	lb/hr	1.09E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.29E-03	lb/hr	7.48E-04	tpy
Generator 1	36 hr/yr	11.5 gal/hr	710 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.87E-03	lb/hr	3.37E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.29E-03	lb/hr	2.31E-05	tpy
Generator 2	1164 hr/yr	11.5 gal/hr	710 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.87E-03	lb/hr	1.09E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.29E-03	lb/hr	7.48E-04	tpy
Generator 2	36 hr/yr	11.5 gal/hr	710 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.87E-03	lb/hr	3.37E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.29E-03	lb/hr	2.31E-05	tpy
Emergency Generator	8 hr/yr	14.8 gal/hr	279 hp	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	7.99E-04	lb/hr	3.20E-06	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.57E-04	lb/hr	2.23E-06	tpy
						Vessel Total	2.05E-02	lb/hr	4.85E-03	tpy			Vessel Total	1.41E-02	lb/hr	3.33E-03	tpy
Oil Spill Response Vessel 2																	
Main Engine 1	60 hr/yr	77.5 gal/hr	-- --	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.88E-03	lb/hr	8.63E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.98E-03	lb/hr	5.93E-05	tpy
Main Engine 2	60 hr/yr	77.5 gal/hr	-- --	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.88E-03	lb/hr	8.63E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.98E-03	lb/hr	5.93E-05	tpy
Thruster Engine 1	0 hr/yr	0.0 gal/hr	0 hp	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	0.00E+00	lb/hr	0.00E+00	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	0.00E+00	lb/hr	0.00E+00	tpy
Thruster Engine 2	0 hr/yr	0.0 gal/hr	0 hp	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	0.00E+00	lb/hr	0.00E+00	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	0.00E+00	lb/hr	0.00E+00	tpy
Thruster Engine 3	0 hr/yr	0.0 gal/hr	0 hp	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	0.00E+00	lb/hr	0.00E+00	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	0.00E+00	lb/hr	0.00E+00	tpy
Generator 1	30 hr/yr	11.5 gal/hr	710 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.87E-03	lb/hr	2.81E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.29E-03	lb/hr	1.93E-05	tpy
Generator 2	30 hr/yr	11.5 gal/hr	710 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.87E-03	lb/hr	2.81E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.29E-03	lb/hr	1.93E-05	tpy
Emergency Generator	8 hr/yr	14.8 gal/hr	279 hp	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	7.99E-04	lb/hr	3.20E-06	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.57E-04	lb/hr	2.23E-06	tpy
						Vessel Total	1.03E-02	lb/hr	2.32E-04	tpy			Vessel Total	7.08E-03	lb/hr	1.59E-04	tpy

Devil's Paw Prospect - Annual Emissions Inventory - HAPs

				o-Xylene							m-Xylene						
Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handler Tug Supply Vessel (AHTS)																	
Main Engine 1	0.08 hr/yr	99.4 gal/hr	1400 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	2.08E-03	lb/hr	8.31E-08	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	2.15E-03	lb/hr	8.59E-08	tpy
Main Engine 2	0.08 hr/yr	99.4 gal/hr	1400 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	2.08E-03	lb/hr	8.31E-08	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	2.15E-03	lb/hr	8.59E-08	tpy
Main Engine 1	9 hr/yr	71.0 gal/hr	1000 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.48E-03	lb/hr	6.68E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.53E-03	lb/hr	6.90E-06	tpy
Main Engine 2	9 hr/yr	71.0 gal/hr	1000 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.48E-03	lb/hr	6.68E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.53E-03	lb/hr	6.90E-06	tpy
Tow Winch Engine	9 hr/yr	10.7 gal/hr	150 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	2.23E-04	lb/hr	1.00E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	2.30E-04	lb/hr	1.04E-06	tpy
Thruster Engine 1	9 hr/yr	26.6 gal/hr	375 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.57E-04	lb/hr	2.51E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.75E-04	lb/hr	2.59E-06	tpy
Thruster Engine 2	9 hr/yr	26.6 gal/hr	375 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.57E-04	lb/hr	2.51E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.75E-04	lb/hr	2.59E-06	tpy
Generator 1	1196 hr/yr	17.8 gal/hr	250 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.71E-04	lb/hr	2.22E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.84E-04	lb/hr	2.29E-04	tpy
Generator 1	9 hr/yr	21.3 gal/hr	300 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	4.45E-04	lb/hr	2.00E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	4.60E-04	lb/hr	2.07E-06	tpy
Generator 1	0.08 hr/yr	17.8 gal/hr	250 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.71E-04	lb/hr	1.48E-08	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.84E-04	lb/hr	1.53E-08	tpy
Generator 2	1196 hr/yr	10.7 gal/hr	150 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	2.23E-04	lb/hr	1.33E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	2.30E-04	lb/hr	1.38E-04	tpy
Emergency Generator	8 hr/yr	19.6 gal/hr	276 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	4.10E-04	lb/hr	1.64E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	4.23E-04	lb/hr	1.69E-06	tpy
						Vessel Total	1.03E-02	lb/hr	3.78E-04	tpy			Vessel Total	1.06E-02	lb/hr	3.91E-04	tpy
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
Main Engine 1	864 hr/yr	77.5 gal/hr	-- --	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.62E-03	lb/hr	7.00E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.67E-03	lb/hr	7.23E-04	tpy
Main Engine 2	864 hr/yr	77.5 gal/hr	-- --	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.62E-03	lb/hr	7.00E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.67E-03	lb/hr	7.23E-04	tpy
Thruster Engine 1	36 hr/yr	11.6 gal/hr	1100 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.22E-03	lb/hr	2.19E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.26E-03	lb/hr	2.27E-05	tpy
Thruster Engine 2	36 hr/yr	10.6 gal/hr	1100 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.22E-03	lb/hr	2.19E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.26E-03	lb/hr	2.27E-05	tpy
Thruster Engine 3	36 hr/yr	7.1 gal/hr	1100 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.22E-03	lb/hr	2.19E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.26E-03	lb/hr	2.27E-05	tpy
Generator 1	1164 hr/yr	11.5 gal/hr	710 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.05E-03	lb/hr	6.13E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.09E-03	lb/hr	6.34E-04	tpy
Generator 1	36 hr/yr	11.5 gal/hr	710 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.05E-03	lb/hr	1.90E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.09E-03	lb/hr	1.96E-05	tpy
Generator 2	1164 hr/yr	11.5 gal/hr	710 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.05E-03	lb/hr	6.13E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.09E-03	lb/hr	6.34E-04	tpy
Generator 2	36 hr/yr	11.5 gal/hr	710 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.05E-03	lb/hr	1.90E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.09E-03	lb/hr	1.96E-05	tpy
Emergency Generator	8 hr/yr	14.8 gal/hr	279 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.09E-04	lb/hr	1.24E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.19E-04	lb/hr	1.28E-06	tpy
						Vessel Total	1.14E-02	lb/hr	2.73E-03	tpy			Vessel Total	1.18E-02	lb/hr	2.82E-03	tpy
Oil Spill Response Vessel 2																	
Main Engine 1	60 hr/yr	77.5 gal/hr	-- --	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.62E-03	lb/hr	4.86E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.67E-03	lb/hr	5.02E-05	tpy
Main Engine 2	60 hr/yr	77.5 gal/hr	-- --	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.62E-03	lb/hr	4.86E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.67E-03	lb/hr	5.02E-05	tpy
Thruster Engine 1	0 hr/yr	0.0 gal/hr	0 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy
Thruster Engine 2	0 hr/yr	0.0 gal/hr	0 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy
Thruster Engine 3	0 hr/yr	0.0 gal/hr	0 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy
Generator 1	30 hr/yr	11.5 gal/hr	710 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.05E-03	lb/hr	1.58E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.09E-03	lb/hr	1.63E-05	tpy
Generator 2	30 hr/yr	11.5 gal/hr	710 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.05E-03	lb/hr	1.58E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.09E-03	lb/hr	1.63E-05	tpy
Emergency Generator	8 hr/yr	14.8 gal/hr	279 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.09E-04	lb/hr	1.24E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.19E-04	lb/hr	1.28E-06	tpy
						Vessel Total	5.66E-03	lb/hr	1.30E-04	tpy			Vessel Total	5.85E-03	lb/hr	1.34E-04	tpy

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				Arsenic Compounds (inorganic including arsine)							Beryllium Compounds						
Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handler Tug Supply Vessel (AHTS)																	
0 Main Engine 1	0.08 hr/yr	99.4 gal/hr	1400 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.59E-04	lb/hr	6.36E-09	tpy	none						
0 Main Engine 2	0.08 hr/yr	99.4 gal/hr	1400 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.59E-04	lb/hr	6.36E-09	tpy	none						
0 Main Engine 1	9 hr/yr	71.0 gal/hr	1000 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.14E-04	lb/hr	5.11E-07	tpy	none						
0 Main Engine 2	9 hr/yr	71.0 gal/hr	1000 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.14E-04	lb/hr	5.11E-07	tpy	none						
0 Tow Winch Engine	9 hr/yr	10.7 gal/hr	150 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.70E-05	lb/hr	7.67E-08	tpy	none						
0 Thruster Engine 1	9 hr/yr	26.6 gal/hr	375 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.26E-05	lb/hr	1.92E-07	tpy	none						
0 Thruster Engine 2	9 hr/yr	26.6 gal/hr	375 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.26E-05	lb/hr	1.92E-07	tpy	none						
0 Generator 1	1196 hr/yr	17.8 gal/hr	250 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.84E-05	lb/hr	1.70E-05	tpy	none						
0 Generator 1	9 hr/yr	21.3 gal/hr	300 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	3.41E-05	lb/hr	1.53E-07	tpy	none						
0 Generator 1	0.08 hr/yr	17.8 gal/hr	250 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.84E-05	lb/hr	1.14E-09	tpy	none						
0 Generator 2	1196 hr/yr	10.7 gal/hr	150 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.70E-05	lb/hr	1.02E-05	tpy	none						
0 Emergency Generator	8 hr/yr	19.6 gal/hr	276 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	3.14E-05	lb/hr	1.25E-07	tpy	none						
						Vessel Total	7.87E-04	lb/hr	2.90E-05	tpy			Vessel Total	0.00E+00	lb/hr	0.00E+00	tpy
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
0 Main Engine 1	864 hr/yr	77.5 gal/hr	-- --	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.24E-04	lb/hr	5.36E-05	tpy	none						
0 Main Engine 2	864 hr/yr	77.5 gal/hr	-- --	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.24E-04	lb/hr	5.36E-05	tpy	none						
0 Thruster Engine 1	36 hr/yr	11.6 gal/hr	1100 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	9.33E-05	lb/hr	1.68E-06	tpy	none						
0 Thruster Engine 2	36 hr/yr	10.6 gal/hr	1100 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	9.33E-05	lb/hr	1.68E-06	tpy	none						
0 Thruster Engine 3	36 hr/yr	7.1 gal/hr	1100 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	9.33E-05	lb/hr	1.68E-06	tpy	none						
0 Generator 1	1164 hr/yr	11.5 gal/hr	710 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	8.07E-05	lb/hr	4.70E-05	tpy	none						
0 Generator 1	36 hr/yr	11.5 gal/hr	710 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	8.07E-05	lb/hr	1.45E-06	tpy	none						
0 Generator 2	1164 hr/yr	11.5 gal/hr	710 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	8.07E-05	lb/hr	4.70E-05	tpy	none						
0 Generator 2	36 hr/yr	11.5 gal/hr	710 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	8.07E-05	lb/hr	1.45E-06	tpy	none						
0 Emergency Generator	8 hr/yr	14.8 gal/hr	279 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.37E-05	lb/hr	9.46E-08	tpy	none						
						Vessel Total	8.74E-04	lb/hr	2.09E-04	tpy			Vessel Total	0.00E+00	lb/hr	0.00E+00	tpy
Oil Spill Response Vessel 2																	
0 Main Engine 1	60 hr/yr	77.5 gal/hr	-- --	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.24E-04	lb/hr	3.72E-06	tpy	none						
0 Main Engine 2	60 hr/yr	77.5 gal/hr	-- --	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.24E-04	lb/hr	3.72E-06	tpy	none						
0 Thruster Engine 1	0 hr/yr	0.0 gal/hr	0 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	none						
0 Thruster Engine 2	0 hr/yr	0.0 gal/hr	0 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	none						
0 Thruster Engine 3	0 hr/yr	0.0 gal/hr	0 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	none						
0 Generator 1	30 hr/yr	11.5 gal/hr	710 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	8.07E-05	lb/hr	1.21E-06	tpy	none						
0 Generator 2	30 hr/yr	11.5 gal/hr	710 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	8.07E-05	lb/hr	1.21E-06	tpy	none						
0 Emergency Generator	8 hr/yr	14.8 gal/hr	279 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.37E-05	lb/hr	9.46E-08	tpy	none						
						Vessel Total	4.33E-04	lb/hr	9.96E-06	tpy			Vessel Total	0.00E+00	lb/hr	0.00E+00	tpy

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					Cadmium Compounds							Chromium Compounds						
Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handler Tug Supply Vessel (AHTS)																		
0 Main Engine 1	0.08 hr/yr	99.4 gal/hr	1400 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	1.49E-04	lb/hr	5.97E-09	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	6.96E-05	lb/hr	2.78E-09	tpy
0 Main Engine 2	0.08 hr/yr	99.4 gal/hr	1400 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	1.49E-04	lb/hr	5.97E-09	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	6.96E-05	lb/hr	2.78E-09	tpy
0 Main Engine 1	9 hr/yr	71.0 gal/hr	1000 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	1.07E-04	lb/hr	4.79E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.97E-05	lb/hr	2.24E-07	tpy
0 Main Engine 2	9 hr/yr	71.0 gal/hr	1000 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	1.07E-04	lb/hr	4.79E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.97E-05	lb/hr	2.24E-07	tpy
0 Tow Winch Engine	9 hr/yr	10.7 gal/hr	150 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	1.60E-05	lb/hr	7.19E-08	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	7.46E-06	lb/hr	3.36E-08	tpy
0 Thruster Engine 1	9 hr/yr	26.6 gal/hr	375 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	4.00E-05	lb/hr	1.80E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.86E-05	lb/hr	8.39E-08	tpy
0 Thruster Engine 2	9 hr/yr	26.6 gal/hr	375 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	4.00E-05	lb/hr	1.80E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.86E-05	lb/hr	8.39E-08	tpy
0 Generator 1	1196 hr/yr	17.8 gal/hr	250 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	2.66E-05	lb/hr	1.59E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.24E-05	lb/hr	7.43E-06	tpy
0 Generator 1	9 hr/yr	21.3 gal/hr	300 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	3.20E-05	lb/hr	1.44E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.49E-05	lb/hr	6.71E-08	tpy
0 Generator 1	0.08 hr/yr	17.8 gal/hr	250 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	2.66E-05	lb/hr	1.07E-09	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.24E-05	lb/hr	4.97E-10	tpy
0 Generator 2	1196 hr/yr	10.7 gal/hr	150 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	1.60E-05	lb/hr	9.56E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	7.46E-06	lb/hr	4.46E-06	tpy
0 Emergency Generator	8 hr/yr	19.6 gal/hr	276 hp		1.14E-05	lb/MMBtu fuel input	VCAPCD	2.94E-05	lb/hr	1.18E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.37E-05	lb/hr	5.49E-08	tpy
							Vessel Total	7.38E-04	lb/hr	2.72E-05	tpy			Vessel Total	3.44E-04	lb/hr	1.27E-05	tpy
Oil Spill Response Vessel 1 (Dedicated OSRV)																		
0 Main Engine 1	864 hr/yr	77.5 gal/hr	-- --		1.14E-05	lb/MMBtu fuel input	VCAPCD	1.16E-04	lb/hr	5.02E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.43E-05	lb/hr	2.34E-05	tpy
0 Main Engine 2	864 hr/yr	77.5 gal/hr	-- --		1.14E-05	lb/MMBtu fuel input	VCAPCD	1.16E-04	lb/hr	5.02E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.43E-05	lb/hr	2.34E-05	tpy
0 Thruster Engine 1	36 hr/yr	11.6 gal/hr	1100 hp		1.14E-05	lb/MMBtu fuel input	VCAPCD	8.74E-05	lb/hr	1.57E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.08E-05	lb/hr	7.34E-07	tpy
0 Thruster Engine 2	36 hr/yr	10.6 gal/hr	1100 hp		1.14E-05	lb/MMBtu fuel input	VCAPCD	8.74E-05	lb/hr	1.57E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.08E-05	lb/hr	7.34E-07	tpy
0 Thruster Engine 3	36 hr/yr	7.1 gal/hr	1100 hp		1.14E-05	lb/MMBtu fuel input	VCAPCD	8.74E-05	lb/hr	1.57E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.08E-05	lb/hr	7.34E-07	tpy
0 Generator 1	1164 hr/yr	11.5 gal/hr	710 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	7.57E-05	lb/hr	4.40E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	3.53E-05	lb/hr	2.05E-05	tpy
0 Generator 1	36 hr/yr	11.5 gal/hr	710 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	7.57E-05	lb/hr	1.36E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	3.53E-05	lb/hr	6.35E-07	tpy
0 Generator 2	1164 hr/yr	11.5 gal/hr	710 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	7.57E-05	lb/hr	4.40E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	3.53E-05	lb/hr	2.05E-05	tpy
0 Generator 2	36 hr/yr	11.5 gal/hr	710 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	7.57E-05	lb/hr	1.36E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	3.53E-05	lb/hr	6.35E-07	tpy
0 Emergency Generator	8 hr/yr	14.8 gal/hr	279 hp		1.14E-05	lb/MMBtu fuel input	VCAPCD	2.22E-05	lb/hr	8.87E-08	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.03E-05	lb/hr	4.14E-08	tpy
							Vessel Total	8.20E-04	lb/hr	1.96E-04	tpy			Vessel Total	3.82E-04	lb/hr	9.15E-05	tpy
Oil Spill Response Vessel 2																		
0 Main Engine 1	60 hr/yr	77.5 gal/hr	-- --		1.14E-05	lb/MMBtu fuel input	VCAPCD	1.16E-04	lb/hr	3.49E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.43E-05	lb/hr	1.63E-06	tpy
0 Main Engine 2	60 hr/yr	77.5 gal/hr	-- --		1.14E-05	lb/MMBtu fuel input	VCAPCD	1.16E-04	lb/hr	3.49E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.43E-05	lb/hr	1.63E-06	tpy
0 Thruster Engine 1	0 hr/yr	0.0 gal/hr	0 hp		1.14E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
0 Thruster Engine 2	0 hr/yr	0.0 gal/hr	0 hp		1.14E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
0 Thruster Engine 3	0 hr/yr	0.0 gal/hr	0 hp		1.14E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
0 Generator 1	30 hr/yr	11.5 gal/hr	710 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	7.57E-05	lb/hr	1.13E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	3.53E-05	lb/hr	5.30E-07	tpy
0 Generator 2	30 hr/yr	11.5 gal/hr	710 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	7.57E-05	lb/hr	1.13E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	3.53E-05	lb/hr	5.30E-07	tpy
0 Emergency Generator	8 hr/yr	14.8 gal/hr	279 hp		1.14E-05	lb/MMBtu fuel input	VCAPCD	2.22E-05	lb/hr	8.87E-08	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.03E-05	lb/hr	4.14E-08	tpy
							Vessel Total	4.06E-04	lb/hr	9.33E-06	tpy			Vessel Total	1.89E-04	lb/hr	4.36E-06	tpy

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					Lead Compounds							Manganese Compounds						
	Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
	Anchor Handler Tug Supply Vessel (AHTS)																	
0	Main Engine 1	0.08 hr/yr	99.4 gal/hr	1400 kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	8.25E-04	lb/hr	3.30E-08	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	3.08E-04	lb/hr	1.23E-08	tpy
0	Main Engine 2	0.08 hr/yr	99.4 gal/hr	1400 kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	8.25E-04	lb/hr	3.30E-08	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	3.08E-04	lb/hr	1.23E-08	tpy
0	Main Engine 1	9 hr/yr	71.0 gal/hr	1000 kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	5.90E-04	lb/hr	2.65E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.20E-04	lb/hr	9.91E-07	tpy
0	Main Engine 2	9 hr/yr	71.0 gal/hr	1000 kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	5.90E-04	lb/hr	2.65E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.20E-04	lb/hr	9.91E-07	tpy
0	Tow Winch Engine	9 hr/yr	10.7 gal/hr	150 kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	8.84E-05	lb/hr	3.98E-07	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	3.30E-05	lb/hr	1.49E-07	tpy
0	Thruster Engine 1	9 hr/yr	26.6 gal/hr	375 kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.21E-04	lb/hr	9.95E-07	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.26E-05	lb/hr	3.72E-07	tpy
0	Thruster Engine 2	9 hr/yr	26.6 gal/hr	375 kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	2.21E-04	lb/hr	9.95E-07	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.26E-05	lb/hr	3.72E-07	tpy
0	Generator 1	1196 hr/yr	17.8 gal/hr	250 kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.47E-04	lb/hr	8.81E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	5.51E-05	lb/hr	3.29E-05	tpy
0	Generator 1	9 hr/yr	21.3 gal/hr	300 kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.77E-04	lb/hr	7.96E-07	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	6.61E-05	lb/hr	2.97E-07	tpy
0	Generator 1	0.08 hr/yr	17.8 gal/hr	250 kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.47E-04	lb/hr	5.90E-09	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	5.51E-05	lb/hr	2.20E-09	tpy
0	Generator 2	1196 hr/yr	10.7 gal/hr	150 kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	8.84E-05	lb/hr	5.29E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	3.30E-05	lb/hr	1.98E-05	tpy
0	Emergency Generator	8 hr/yr	19.6 gal/hr	276 hp	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.63E-04	lb/hr	6.51E-07	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	6.08E-05	lb/hr	2.43E-07	tpy
							Vessel Total	4.08E-03	lb/hr	1.50E-04	tpy			Vessel Total	1.53E-03	lb/hr	5.61E-05	tpy
	Oil Spill Response Vessel 1 (Dedicated OSRV)																	
0	Main Engine 1	864 hr/yr	77.5 gal/hr	-- --	6.28E-05	lb/MMBtu fuel input	VCAPCD	6.43E-04	lb/hr	2.78E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.40E-04	lb/hr	1.04E-04	tpy
0	Main Engine 2	864 hr/yr	77.5 gal/hr	-- --	6.28E-05	lb/MMBtu fuel input	VCAPCD	6.43E-04	lb/hr	2.78E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.40E-04	lb/hr	1.04E-04	tpy
0	Thruster Engine 1	36 hr/yr	11.6 gal/hr	1100 hp	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.84E-04	lb/hr	8.71E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.81E-04	lb/hr	3.25E-06	tpy
0	Thruster Engine 2	36 hr/yr	10.6 gal/hr	1100 hp	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.84E-04	lb/hr	8.71E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.81E-04	lb/hr	3.25E-06	tpy
0	Thruster Engine 3	36 hr/yr	7.1 gal/hr	1100 hp	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.84E-04	lb/hr	8.71E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.81E-04	lb/hr	3.25E-06	tpy
0	Generator 1	1164 hr/yr	11.5 gal/hr	710 kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.19E-04	lb/hr	2.44E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.56E-04	lb/hr	9.10E-05	tpy
0	Generator 1	36 hr/yr	11.5 gal/hr	710 kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.19E-04	lb/hr	7.54E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.56E-04	lb/hr	2.81E-06	tpy
0	Generator 2	1164 hr/yr	11.5 gal/hr	710 kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.19E-04	lb/hr	2.44E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.56E-04	lb/hr	9.10E-05	tpy
0	Generator 2	36 hr/yr	11.5 gal/hr	710 kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.19E-04	lb/hr	7.54E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.56E-04	lb/hr	2.81E-06	tpy
0	Emergency Generator	8 hr/yr	14.8 gal/hr	279 hp	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.23E-04	lb/hr	4.91E-07	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	4.58E-05	lb/hr	1.83E-07	tpy
							Vessel Total	4.54E-03	lb/hr	1.08E-03	tpy			Vessel Total	1.69E-03	lb/hr	4.05E-04	tpy
	Oil Spill Response Vessel 2																	
0	Main Engine 1	60 hr/yr	77.5 gal/hr	-- --	6.28E-05	lb/MMBtu fuel input	VCAPCD	6.43E-04	lb/hr	1.93E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.40E-04	lb/hr	7.21E-06	tpy
0	Main Engine 2	60 hr/yr	77.5 gal/hr	-- --	6.28E-05	lb/MMBtu fuel input	VCAPCD	6.43E-04	lb/hr	1.93E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.40E-04	lb/hr	7.21E-06	tpy
0	Thruster Engine 1	0 hr/yr	0.0 gal/hr	0 hp	6.28E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
0	Thruster Engine 2	0 hr/yr	0.0 gal/hr	0 hp	6.28E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
0	Thruster Engine 3	0 hr/yr	0.0 gal/hr	0 hp	6.28E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
0	Generator 1	30 hr/yr	11.5 gal/hr	710 kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.19E-04	lb/hr	6.28E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.56E-04	lb/hr	2.35E-06	tpy
0	Generator 2	30 hr/yr	11.5 gal/hr	710 kW	6.28E-05	lb/MMBtu fuel input	VCAPCD	4.19E-04	lb/hr	6.28E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.56E-04	lb/hr	2.35E-06	tpy
0	Emergency Generator	8 hr/yr	14.8 gal/hr	279 hp	6.28E-05	lb/MMBtu fuel input	VCAPCD	1.23E-04	lb/hr	4.91E-07	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	4.58E-05	lb/hr	1.83E-07	tpy
							Vessel Total	2.25E-03	lb/hr	5.16E-05	tpy			Vessel Total	8.39E-04	lb/hr	1.93E-05	tpy

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					Mercury Compounds							Nickel Compounds						
Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handler Tug Supply Vessel (AHTS)																		
Main Engine 1	0.08 hr/yr	99.4 gal/hr	1400 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.99E-04	lb/hr	7.96E-09	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.88E-04	lb/hr	1.55E-08	tpy
Main Engine 2	0.08 hr/yr	99.4 gal/hr	1400 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.99E-04	lb/hr	7.96E-09	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.88E-04	lb/hr	1.55E-08	tpy
Main Engine 1	9 hr/yr	71.0 gal/hr	1000 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.42E-04	lb/hr	6.39E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.77E-04	lb/hr	1.25E-06	tpy
Main Engine 2	9 hr/yr	71.0 gal/hr	1000 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.42E-04	lb/hr	6.39E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.77E-04	lb/hr	1.25E-06	tpy
Tow Winch Engine	9 hr/yr	10.7 gal/hr	150 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	2.13E-05	lb/hr	9.59E-08	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	4.16E-05	lb/hr	1.87E-07	tpy
Thruster Engine 1	9 hr/yr	26.6 gal/hr	375 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	5.33E-05	lb/hr	2.40E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.04E-04	lb/hr	4.68E-07	tpy
Thruster Engine 2	9 hr/yr	26.6 gal/hr	375 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	5.33E-05	lb/hr	2.40E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.04E-04	lb/hr	4.68E-07	tpy
Generator 1	1196 hr/yr	17.8 gal/hr	250 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	3.55E-05	lb/hr	2.12E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	6.93E-05	lb/hr	4.14E-05	tpy
Generator 1	9 hr/yr	21.3 gal/hr	300 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	4.26E-05	lb/hr	1.92E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	8.31E-05	lb/hr	3.74E-07	tpy
Generator 1	0.08 hr/yr	17.8 gal/hr	250 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	3.55E-05	lb/hr	1.42E-09	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	6.93E-05	lb/hr	2.77E-09	tpy
Generator 2	1196 hr/yr	10.7 gal/hr	150 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	2.13E-05	lb/hr	1.27E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	4.16E-05	lb/hr	2.49E-05	tpy
Emergency Generator	8 hr/yr	19.6 gal/hr	276 hp		1.51E-05	lb/MMBtu fuel input	VCAPCD	3.92E-05	lb/hr	1.57E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	7.65E-05	lb/hr	3.06E-07	tpy
							Vessel Total	9.84E-04	lb/hr	3.62E-05	tpy			Vessel Total	1.92E-03	lb/hr	7.06E-05	tpy
Oil Spill Response Vessel 1 (Dedicated OSRV)																		
Main Engine 1	864 hr/yr	77.5 gal/hr	-- --		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.55E-04	lb/hr	6.70E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.02E-04	lb/hr	1.31E-04	tpy
Main Engine 2	864 hr/yr	77.5 gal/hr	-- --		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.55E-04	lb/hr	6.70E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.02E-04	lb/hr	1.31E-04	tpy
Thruster Engine 1	36 hr/yr	11.6 gal/hr	1100 hp		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	2.10E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.27E-04	lb/hr	4.09E-06	tpy
Thruster Engine 2	36 hr/yr	10.6 gal/hr	1100 hp		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	2.10E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.27E-04	lb/hr	4.09E-06	tpy
Thruster Engine 3	36 hr/yr	7.1 gal/hr	1100 hp		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.17E-04	lb/hr	2.10E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.27E-04	lb/hr	4.09E-06	tpy
Generator 1	1164 hr/yr	11.5 gal/hr	710 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.01E-04	lb/hr	5.87E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.97E-04	lb/hr	1.14E-04	tpy
Generator 1	36 hr/yr	11.5 gal/hr	710 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.01E-04	lb/hr	1.82E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.97E-04	lb/hr	3.54E-06	tpy
Generator 2	1164 hr/yr	11.5 gal/hr	710 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.01E-04	lb/hr	5.87E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.97E-04	lb/hr	1.14E-04	tpy
Generator 2	36 hr/yr	11.5 gal/hr	710 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.01E-04	lb/hr	1.82E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.97E-04	lb/hr	3.54E-06	tpy
Emergency Generator	8 hr/yr	14.8 gal/hr	279 hp		1.51E-05	lb/MMBtu fuel input	VCAPCD	2.96E-05	lb/hr	1.18E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	5.77E-05	lb/hr	2.31E-07	tpy
							Vessel Total	1.09E-03	lb/hr	2.61E-04	tpy			Vessel Total	2.13E-03	lb/hr	5.10E-04	tpy
Oil Spill Response Vessel 2																		
Main Engine 1	60 hr/yr	77.5 gal/hr	-- --		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.55E-04	lb/hr	4.65E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.02E-04	lb/hr	9.07E-06	tpy
Main Engine 2	60 hr/yr	77.5 gal/hr	-- --		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.55E-04	lb/hr	4.65E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.02E-04	lb/hr	9.07E-06	tpy
Thruster Engine 1	0 hr/yr	0.0 gal/hr	0 hp		1.51E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
Thruster Engine 2	0 hr/yr	0.0 gal/hr	0 hp		1.51E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
Thruster Engine 3	0 hr/yr	0.0 gal/hr	0 hp		1.51E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
Generator 1	30 hr/yr	11.5 gal/hr	710 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.01E-04	lb/hr	1.51E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.97E-04	lb/hr	2.95E-06	tpy
Generator 2	30 hr/yr	11.5 gal/hr	710 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.01E-04	lb/hr	1.51E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.97E-04	lb/hr	2.95E-06	tpy
Emergency Generator	8 hr/yr	14.8 gal/hr	279 hp		1.51E-05	lb/MMBtu fuel input	VCAPCD	2.96E-05	lb/hr	1.18E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	5.77E-05	lb/hr	2.31E-07	tpy
							Vessel Total	5.41E-04	lb/hr	1.24E-05	tpy			Vessel Total	1.06E-03	lb/hr	2.43E-05	tpy

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				Polycyclic Organic Matter (See notes 13 & 14)							Selenium Compounds						
Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Anchor Handler Tug Supply Vessel (AHTS)																	
Main Engine 1	0.08 hr/yr	99.4 gal/hr	1400 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.78E-03	lb/hr	1.11E-07	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	2.19E-04	lb/hr	8.75E-09	tpy
Main Engine 2	0.08 hr/yr	99.4 gal/hr	1400 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.78E-03	lb/hr	1.11E-07	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	2.19E-04	lb/hr	8.75E-09	tpy
Main Engine 1	9 hr/yr	71.0 gal/hr	1000 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.98E-03	lb/hr	8.93E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.56E-04	lb/hr	7.03E-07	tpy
Main Engine 2	9 hr/yr	71.0 gal/hr	1000 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.98E-03	lb/hr	8.93E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.56E-04	lb/hr	7.03E-07	tpy
Tow Winch Engine	9 hr/yr	10.7 gal/hr	150 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.98E-04	lb/hr	1.34E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	2.34E-05	lb/hr	1.05E-07	tpy
Thruster Engine 1	9 hr/yr	26.6 gal/hr	375 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	7.44E-04	lb/hr	3.35E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.86E-05	lb/hr	2.64E-07	tpy
Thruster Engine 2	9 hr/yr	26.6 gal/hr	375 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	7.44E-04	lb/hr	3.35E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.86E-05	lb/hr	2.64E-07	tpy
Generator 1	1196 hr/yr	17.8 gal/hr	250 kW	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.94E-04	lb/hr	2.36E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.91E-05	lb/hr	2.34E-05	tpy
Generator 1	9 hr/yr	21.3 gal/hr	300 kW	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	4.73E-04	lb/hr	2.13E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	4.69E-05	lb/hr	2.11E-07	tpy
Generator 1	0.08 hr/yr	17.8 gal/hr	250 kW	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.94E-04	lb/hr	1.58E-08	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.91E-05	lb/hr	1.56E-09	tpy
Generator 2	1196 hr/yr	10.7 gal/hr	150 kW	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.37E-04	lb/hr	1.41E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	2.34E-05	lb/hr	1.40E-05	tpy
Emergency Generator	8 hr/yr	19.6 gal/hr	276 hp	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	4.35E-04	lb/hr	1.74E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	4.31E-05	lb/hr	1.73E-07	tpy
						Vessel Total	1.32E-02	lb/hr	4.07E-04	tpy			Vessel Total	1.08E-03	lb/hr	3.98E-05	tpy
Oil Spill Response Vessel 1 (Dedicated OSRV)																	
Main Engine 1	864 hr/yr	77.5 gal/hr	-- --	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.17E-03	lb/hr	9.36E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.71E-04	lb/hr	7.37E-05	tpy
Main Engine 2	864 hr/yr	77.5 gal/hr	-- --	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.17E-03	lb/hr	9.36E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.71E-04	lb/hr	7.37E-05	tpy
Thruster Engine 1	36 hr/yr	11.6 gal/hr	1100 hp	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.63E-03	lb/hr	2.93E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.28E-04	lb/hr	2.31E-06	tpy
Thruster Engine 2	36 hr/yr	10.6 gal/hr	1100 hp	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.63E-03	lb/hr	2.93E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.28E-04	lb/hr	2.31E-06	tpy
Thruster Engine 3	36 hr/yr	7.1 gal/hr	1100 hp	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.63E-03	lb/hr	2.93E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.28E-04	lb/hr	2.31E-06	tpy
Generator 1	1164 hr/yr	11.5 gal/hr	710 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.41E-03	lb/hr	8.20E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.11E-04	lb/hr	6.46E-05	tpy
Generator 1	36 hr/yr	11.5 gal/hr	710 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.41E-03	lb/hr	2.54E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.11E-04	lb/hr	2.00E-06	tpy
Generator 2	1164 hr/yr	11.5 gal/hr	710 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.41E-03	lb/hr	8.20E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.11E-04	lb/hr	6.46E-05	tpy
Generator 2	36 hr/yr	11.5 gal/hr	710 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.41E-03	lb/hr	2.54E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.11E-04	lb/hr	2.00E-06	tpy
Emergency Generator	8 hr/yr	14.8 gal/hr	279 hp	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.28E-04	lb/hr	1.31E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.25E-05	lb/hr	1.30E-07	tpy
						Vessel Total	1.52E-02	lb/hr	3.65E-03	tpy			Vessel Total	1.20E-03	lb/hr	2.88E-04	tpy
Oil Spill Response Vessel 2																	
Main Engine 1	60 hr/yr	77.5 gal/hr	-- --	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.17E-03	lb/hr	6.50E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.71E-04	lb/hr	5.12E-06	tpy
Main Engine 2	60 hr/yr	77.5 gal/hr	-- --	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.17E-03	lb/hr	6.50E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.71E-04	lb/hr	5.12E-06	tpy
Thruster Engine 1	0 hr/yr	0.0 gal/hr	0 hp	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	0.00E+00	lb/hr	0.00E+00	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
Thruster Engine 2	0 hr/yr	0.0 gal/hr	0 hp	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	0.00E+00	lb/hr	0.00E+00	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
Thruster Engine 3	0 hr/yr	0.0 gal/hr	0 hp	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	0.00E+00	lb/hr	0.00E+00	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
Generator 1	30 hr/yr	11.5 gal/hr	710 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.41E-03	lb/hr	2.11E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.11E-04	lb/hr	1.66E-06	tpy
Generator 2	30 hr/yr	11.5 gal/hr	710 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.41E-03	lb/hr	2.11E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.11E-04	lb/hr	1.66E-06	tpy
Emergency Generator	8 hr/yr	14.8 gal/hr	279 hp	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.28E-04	lb/hr	1.31E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.25E-05	lb/hr	1.30E-07	tpy
						Vessel Total	7.48E-03	lb/hr	1.74E-04	tpy			Vessel Total	5.95E-04	lb/hr	1.37E-05	tpy

Devil's Paw Prospect - Annual Emissions Inventory - HAPs

Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Total HAPs	
				Hourly Emission Rate (lb/hr)	Annual Emissions (tons/yr)
Anchor Handler Tug Supply Vessel (AHTS)					
Main Engine 1	0.08 hr/yr	99.4 gal/hr	1400 kW	7.38E-02	2.95E-06
Main Engine 2	0.08 hr/yr	99.4 gal/hr	1400 kW	7.38E-02	2.95E-06
Main Engine 1	9 hr/yr	71.0 gal/hr	1000 kW	5.27E-02	2.37E-04
Main Engine 2	9 hr/yr	71.0 gal/hr	1000 kW	5.27E-02	2.37E-04
Tow Winch Engine	9 hr/yr	10.7 gal/hr	150 kW	7.90E-03	3.56E-05
Thruster Engine 1	9 hr/yr	26.6 gal/hr	375 kW	1.98E-02	8.89E-05
Thruster Engine 2	9 hr/yr	26.6 gal/hr	375 kW	1.98E-02	8.89E-05
Generator 1	1196 hr/yr	17.8 gal/hr	250 kW	1.44E-02	8.63E-03
Generator 1	9 hr/yr	21.3 gal/hr	300 kW	1.73E-02	7.80E-05
Generator 1	0.08 hr/yr	17.8 gal/hr	250 kW	1.44E-02	5.78E-07
Generator 2	1196 hr/yr	10.7 gal/hr	150 kW	8.66E-03	5.18E-03
Emergency Generator	8 hr/yr	19.6 gal/hr	276 hp	1.59E-02	6.38E-05
				3.71E-01	1.46E-02
Oil Spill Response Vessel 1 (Dedicated OSRV)					
Main Engine 1	864 hr/yr	77.5 gal/hr	-- --	5.75E-02	2.48E-02
Main Engine 2	864 hr/yr	77.5 gal/hr	-- --	5.75E-02	2.48E-02
Thruster Engine 1	36 hr/yr	11.6 gal/hr	1100 hp	4.32E-02	7.78E-04
Thruster Engine 2	36 hr/yr	10.6 gal/hr	1100 hp	4.32E-02	7.78E-04
Thruster Engine 3	36 hr/yr	7.1 gal/hr	1100 hp	4.32E-02	7.78E-04
Generator 1	1164 hr/yr	11.5 gal/hr	710 kW	3.74E-02	2.18E-02
Generator 1	36 hr/yr	11.5 gal/hr	710 kW	3.74E-02	6.73E-04
Generator 2	1164 hr/yr	11.5 gal/hr	710 kW	3.74E-02	2.18E-02
Generator 2	36 hr/yr	11.5 gal/hr	710 kW	3.74E-02	6.73E-04
Emergency Generator	8 hr/yr	14.8 gal/hr	279 hp	1.20E-02	4.81E-05
				4.06E-01	9.69E-02
Oil Spill Response Vessel 2					
Main Engine 1	60 hr/yr	77.5 gal/hr	-- --	5.75E-02	1.72E-03
Main Engine 2	60 hr/yr	77.5 gal/hr	-- --	5.75E-02	1.72E-03
Thruster Engine 1	0 hr/yr	0.0 gal/hr	0 hp	0.00E+00	0.00E+00
Thruster Engine 2	0 hr/yr	0.0 gal/hr	0 hp	0.00E+00	0.00E+00
Thruster Engine 3	0 hr/yr	0.0 gal/hr	0 hp	0.00E+00	0.00E+00
Generator 1	30 hr/yr	11.5 gal/hr	710 kW	3.74E-02	5.61E-04
Generator 2	30 hr/yr	11.5 gal/hr	710 kW	3.74E-02	5.61E-04
Emergency Generator	8 hr/yr	14.8 gal/hr	279 hp	1.20E-02	4.81E-05
				2.02E-01	4.62E-03

Devil's Paw Prospect - Annual Emissions Inventory - HAPs

Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Acetaldehyde Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Acrolein Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Offshore Supply Vessels (OSV1 & OSV2)																	
0 Main Engine 1	378 hr/yr	74.5 gal/hr	-- --	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	7.97E-03	lb/hr	1.51E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	9.69E-04	lb/hr	1.83E-04	tpy
0 Main Engine 1	133 hr/yr	67.0 gal/hr	-- --	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	7.17E-03	lb/hr	4.77E-04	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	8.71E-04	lb/hr	5.79E-05	tpy
0 Main Engine 2	378 hr/yr	74.5 gal/hr	-- --	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	7.97E-03	lb/hr	1.51E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	9.69E-04	lb/hr	1.83E-04	tpy
0 Main Engine 2	133 hr/yr	67.0 gal/hr	-- --	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	7.17E-03	lb/hr	4.77E-04	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	8.71E-04	lb/hr	5.79E-05	tpy
0 Thruster Engine 1	756 hr/yr	45.0 gal/hr	950 bhp	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	4.82E-03	lb/hr	1.82E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	5.85E-04	lb/hr	2.21E-04	tpy
0 Thruster Engine 2	756 hr/yr	45.0 gal/hr	950 bhp	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	4.82E-03	lb/hr	1.82E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	5.85E-04	lb/hr	2.21E-04	tpy
0 Thruster Engine 3	756 hr/yr	45.0 gal/hr	950 bhp	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	4.82E-03	lb/hr	1.82E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	5.85E-04	lb/hr	2.21E-04	tpy
0 Generator	633.5 hr/yr	27.0 gal/hr	400 kW	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.74E-03	lb/hr	8.66E-04	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.30E-04	lb/hr	1.04E-04	tpy
0 Generator	633.5 hr/yr	27.0 gal/hr	400 kW	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.74E-03	lb/hr	8.66E-04	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.30E-04	lb/hr	1.04E-04	tpy
0 Generator	0 hr/yr	27.0 gal/hr	-- --	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.74E-03	lb/hr	0.00E+00	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.30E-04	lb/hr	0.00E+00	tpy
0 Emergency Generator	8 hr/yr	8.0 gal/hr	99 kW	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	8.11E-04	lb/hr	3.24E-06	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	9.78E-05	lb/hr	3.91E-07	tpy
						Vessel Total	5.37E-02	lb/hr	1.12E-02	tpy			Vessel Total	6.52E-03	lb/hr	1.35E-03	tpy
Ware Vessel (WV) w/ OSV/AHTS backup																	
0 Main Engine 1	360 hr/yr	87.0 gal/hr	-- hp	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	9.31E-03	lb/hr	1.68E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	1.13E-03	lb/hr	2.04E-04	tpy
0 Main Engine 2	360 hr/yr	87.0 gal/hr	-- hp	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	9.31E-03	lb/hr	1.68E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	1.13E-03	lb/hr	2.04E-04	tpy
0 Main Engine 3	820 hr/yr	81.0 gal/hr	-- hp	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	8.67E-03	lb/hr	3.55E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	1.05E-03	lb/hr	4.32E-04	tpy
0 Main Engine 4	820 hr/yr	81.0 gal/hr	-- hp	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	8.67E-03	lb/hr	3.55E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	1.05E-03	lb/hr	4.32E-04	tpy
0 Generator 1	590 hr/yr	32.0 gal/hr	504 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	3.42E-03	lb/hr	1.01E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	4.16E-04	lb/hr	1.23E-04	tpy
0 Generator 2	590 hr/yr	32.0 gal/hr	504 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	3.42E-03	lb/hr	1.01E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	4.16E-04	lb/hr	1.23E-04	tpy
0 Generator 3	0 hr/yr	32.0 gal/hr	504 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	3.42E-03	lb/hr	0.00E+00	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	4.16E-04	lb/hr	0.00E+00	tpy
0 Emergency Generator	8 hr/yr	12.8 gal/hr	170 kW	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.30E-03	lb/hr	5.19E-06	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.56E-04	lb/hr	6.26E-07	tpy
						Vessel Total	4.75E-02	lb/hr	1.25E-02	tpy			Vessel Total	5.77E-03	lb/hr	1.52E-03	tpy
34' boom work boats - 4																	
0 WB-1 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.53E-03	lb/hr	3.67E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.85E-04	lb/hr	4.43E-06	tpy
0 WB-1 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.53E-03	lb/hr	3.67E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.85E-04	lb/hr	4.43E-06	tpy
0 WB-2 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.53E-03	lb/hr	3.67E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.85E-04	lb/hr	4.43E-06	tpy
0 WB-2 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.53E-03	lb/hr	3.67E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.85E-04	lb/hr	4.43E-06	tpy
0 WB-3 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.53E-03	lb/hr	3.67E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.85E-04	lb/hr	4.43E-06	tpy
0 WB-3 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.53E-03	lb/hr	3.67E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.85E-04	lb/hr	4.43E-06	tpy
0 WB-4 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.53E-03	lb/hr	3.67E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.85E-04	lb/hr	4.43E-06	tpy
0 WB-4 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.53E-03	lb/hr	3.67E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.85E-04	lb/hr	4.43E-06	tpy
						Vessel Total	1.22E-02	lb/hr	2.94E-04	tpy			Vessel Total	1.48E-03	lb/hr	3.54E-05	tpy
Marine Research Vessel																	
0 Main Engine	600 hr/yr	45.0 gal/hr	850 hp	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	4.82E-03	lb/hr	1.45E-03	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	5.86E-04	lb/hr	1.76E-04	tpy
0 Generator 1	600 hr/yr	9.6 gal/hr	135 kW	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	9.72E-04	lb/hr	2.91E-04	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.17E-04	lb/hr	3.52E-05	tpy
0 Generator 2	600 hr/yr	6.4 gal/hr	90 kW	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.48E-04	lb/hr	1.94E-04	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	7.81E-05	lb/hr	2.34E-05	tpy
0 Generator 3	600 hr/yr	2.8 gal/hr	40 kW	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.88E-04	lb/hr	8.64E-05	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.47E-05	lb/hr	1.04E-05	tpy
						Vessel Total	6.73E-03	lb/hr	2.02E-03	tpy			Vessel Total	8.16E-04	lb/hr	2.45E-04	tpy
Spill Storage Tanker																	
0 Main Engine 1	4.72 hr/yr	1031.2 gal/hr	19460 bhp	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	1.10E-01	lb/hr	2.60E-04	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	1.34E-02	lb/hr	3.16E-05	tpy
0 Generator 1	29 hr/yr	42.6 gal/hr	600 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	4.56E-03	lb/hr	6.61E-05	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	5.54E-04	lb/hr	8.03E-06	tpy
0 Generator 2	29 hr/yr	42.6 gal/hr	600 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	4.56E-03	lb/hr	6.61E-05	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	5.54E-04	lb/hr	8.03E-06	tpy
0 Generator 3	0 hr/yr	0.0 gal/hr	0 kW	8.10E-04	lb/MMBtu fuel input	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy	9.84E-05	lb/MMBtu fuel input	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy
0 Emergency Generator	0 hr/yr	0.0 gal/hr	0 kW	7.67E-04	lb/MMBtu fuel input	AP-42 3.3-2	0.00E+00	lb/hr	0.00E+00	tpy	9.25E-05	lb/MMBtu fuel input	AP-42 3.3-2	0.00E+00	lb/hr	0.00E+00	tpy
0 Boiler 1	52.72 hr/yr	4900.0 kg/hr	212 MMBtu/hr*	2.65E+03	lb/10^12 Btu	VCAPCD	5.62E-01	lb/hr	1.48E-02	tpy	2.65E+03	lb/10^12 Btu	VCAPCD	5.62E-01	lb/hr	1.48E-02	tpy
0 Boiler 2	0 hr/yr	0.0 kg/hr	0 MMBtu/hr*	2.65E+03	lb/10^12 Btu	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	2.65E+03	lb/10^12 Btu	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
						Vessel Total	6.81E-01	lb/hr	1.52E-02	tpy			Vessel Total	5.76E-01	lb/hr	1.48E-02	tpy
All Vessels Fuel Tanks																	
0 Fuel Tank	2400 hr/yr	2880158 gal/yr*	N A	none							none						
						Vessel Total	0	lb/hr	0	tpy			Vessel Total	0	lb/hr	0	tpy
						Total Option 1			2.32E-01	tpy			Total Option 1			7.25E-02	tpy
						Total Option 2			2.34E-01	tpy			Total Option 2			7.26E-02	tpy

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					Benzene							1,3-Butadiene						
	Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
	Offshore Supply Vessels (OSV1 & OSV2)																	
0	Main Engine 1	378 hr/yr	74.5 gal/hr	-- --	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	7.64E-03	lb/hr	1.44E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.03E-04	lb/hr	7.62E-05	tpy
0	Main Engine 1	133 hr/yr	67.0 gal/hr	-- --	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	6.87E-03	lb/hr	4.57E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.62E-04	lb/hr	2.41E-05	tpy
0	Main Engine 2	378 hr/yr	74.5 gal/hr	-- --	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	7.64E-03	lb/hr	1.44E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.03E-04	lb/hr	7.62E-05	tpy
0	Main Engine 2	133 hr/yr	67.0 gal/hr	-- --	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	6.87E-03	lb/hr	4.57E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	3.62E-04	lb/hr	2.41E-05	tpy
0	Thruster Engine 1	756 hr/yr	45.0 gal/hr	950 bhp	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.61E-03	lb/hr	1.74E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.43E-04	lb/hr	9.20E-05	tpy
0	Thruster Engine 2	756 hr/yr	45.0 gal/hr	950 bhp	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.61E-03	lb/hr	1.74E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.43E-04	lb/hr	9.20E-05	tpy
0	Thruster Engine 3	756 hr/yr	45.0 gal/hr	950 bhp	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-4	4.61E-03	lb/hr	1.74E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.43E-04	lb/hr	9.20E-05	tpy
0	Generator	633.5 hr/yr	27.0 gal/hr	400 kW	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.33E-03	lb/hr	1.05E-03	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.39E-04	lb/hr	4.42E-05	tpy
0	Generator	633.5 hr/yr	27.0 gal/hr	400 kW	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.33E-03	lb/hr	1.05E-03	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.39E-04	lb/hr	4.42E-05	tpy
0	Generator	0 hr/yr	27.0 gal/hr	-- --	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.33E-03	lb/hr	0.00E+00	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.39E-04	lb/hr	0.00E+00	tpy
0	Emergency Generator	8 hr/yr	8.0 gal/hr	99 kW	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	9.86E-04	lb/hr	3.94E-06	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	4.13E-05	lb/hr	1.65E-07	tpy
							Vessel Total	5.38E-02	lb/hr	1.11E-02	tpy			Vessel Total	2.72E-03	lb/hr	5.65E-04	tpy
	Ware Vessel (WV) w/ OSV/AHTS backup																	
0	Main Engine 1	360 hr/yr	87.0 gal/hr	-- hp	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	8.92E-03	lb/hr	1.61E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.71E-04	lb/hr	8.47E-05	tpy
0	Main Engine 2	360 hr/yr	87.0 gal/hr	-- hp	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	8.92E-03	lb/hr	1.61E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.71E-04	lb/hr	8.47E-05	tpy
0	Main Engine 3	820 hr/yr	81.0 gal/hr	-- hp	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	8.30E-03	lb/hr	3.40E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.38E-04	lb/hr	1.80E-04	tpy
0	Main Engine 4	820 hr/yr	81.0 gal/hr	-- hp	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	8.30E-03	lb/hr	3.40E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	4.38E-04	lb/hr	1.80E-04	tpy
0	Generator 1	590 hr/yr	32.0 gal/hr	504 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.28E-03	lb/hr	9.68E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.73E-04	lb/hr	5.11E-05	tpy
0	Generator 2	590 hr/yr	32.0 gal/hr	504 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.28E-03	lb/hr	9.68E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.73E-04	lb/hr	5.11E-05	tpy
0	Generator 3	0 hr/yr	32.0 gal/hr	504 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.28E-03	lb/hr	0.00E+00	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	1.73E-04	lb/hr	0.00E+00	tpy
0	Emergency Generator	8 hr/yr	12.8 gal/hr	170 kW	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.58E-03	lb/hr	6.31E-06	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	6.61E-05	lb/hr	2.64E-07	tpy
							Vessel Total	4.59E-02	lb/hr	1.20E-02	tpy			Vessel Total	2.40E-03	lb/hr	6.31E-04	tpy
	34' boom work boats - 4																	
0	WB-1 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.86E-03	lb/hr	4.47E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	7.80E-05	lb/hr	1.87E-06	tpy
0	WB-1 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.86E-03	lb/hr	4.47E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	7.80E-05	lb/hr	1.87E-06	tpy
0	WB-2 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.86E-03	lb/hr	4.47E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	7.80E-05	lb/hr	1.87E-06	tpy
0	WB-2 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.86E-03	lb/hr	4.47E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	7.80E-05	lb/hr	1.87E-06	tpy
0	WB-3 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.86E-03	lb/hr	4.47E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	7.80E-05	lb/hr	1.87E-06	tpy
0	WB-3 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.86E-03	lb/hr	4.47E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	7.80E-05	lb/hr	1.87E-06	tpy
0	WB-4 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.86E-03	lb/hr	4.47E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	7.80E-05	lb/hr	1.87E-06	tpy
0	WB-4 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.86E-03	lb/hr	4.47E-05	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	7.80E-05	lb/hr	1.87E-06	tpy
							Vessel Total	1.49E-02	lb/hr	3.57E-04	tpy			Vessel Total	6.24E-04	lb/hr	1.50E-05	tpy
	Marine Research Vessel																	
0	Main Engine	600 hr/yr	45.0 gal/hr	850 hp	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.62E-03	lb/hr	1.39E-03	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.44E-04	lb/hr	7.31E-05	tpy
0	Generator 1	600 hr/yr	9.6 gal/hr	135 kW	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.18E-03	lb/hr	3.55E-04	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	4.95E-05	lb/hr	1.49E-05	tpy
0	Generator 2	600 hr/yr	6.4 gal/hr	90 kW	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	7.88E-04	lb/hr	2.36E-04	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.30E-05	lb/hr	9.91E-06	tpy
0	Generator 3	600 hr/yr	2.8 gal/hr	40 kW	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.50E-04	lb/hr	1.05E-04	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.47E-05	lb/hr	4.40E-06	tpy
							Vessel Total	6.94E-03	lb/hr	2.08E-03	tpy			Vessel Total	3.41E-04	lb/hr	1.02E-04	tpy
	Spill Storage Tanker																	
0	Main Engine 1	4.72 hr/yr	1031.2 gal/hr	19460 bhp	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.06E-01	lb/hr	2.49E-04	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	5.58E-03	lb/hr	1.32E-05	tpy
0	Generator 1	29 hr/yr	42.6 gal/hr	600 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.37E-03	lb/hr	6.33E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.31E-04	lb/hr	3.34E-06	tpy
0	Generator 2	29 hr/yr	42.6 gal/hr	600 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	4.37E-03	lb/hr	6.33E-05	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	2.31E-04	lb/hr	3.34E-06	tpy
0	Generator 3	0 hr/yr	0.0 gal/hr	0 kW	7.76E-04	lb/MMBtu fuel input	AP-42 3.4-3	0.00E+00	lb/hr	0.00E+00	tpy	4.10E-05	lb/MMBtu fuel input	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy
0	Emergency Generator	0 hr/yr	0.0 gal/hr	0 kW	9.33E-04	lb/MMBtu fuel input	AP-42 3.3-2	0.00E+00	lb/hr	0.00E+00	tpy	3.91E-05	lb/MMBtu fuel input	AP-42 3.3-2	0.00E+00	lb/hr	0.00E+00	tpy
0	Boiler 1	52.72 hr/yr	4900.0 kg/hr	212 MMBtu/hr*	1.92E+01	lb/10^12 Btu	CARB-CATEF	4.07E-03	lb/hr	1.07E-04	tpy	1.12E+02	lb/10^12 Btu	VCAPCD	2.37E-02	lb/hr	6.25E-04	tpy
0	Boiler 2	0 hr/yr	0.0 kg/hr	0 MMBtu/hr*	1.92E+01	lb/10^12 Btu	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy	1.12E+02	lb/10^12 Btu	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
							Vessel Total	1.19E-01	lb/hr	4.83E-04	tpy			Vessel Total	2.97E-02	lb/hr	6.45E-04	tpy
	All Vessels Fuel Tanks																	
0	Fuel Tank	2400 hr/yr	2880158 gal/yr*	N A	N A		EPA TANKS	8.33E-09	lb/hr	2.00E-05	tpy	none						
							Vessel Total	8.333E-09	lb/hr	0.00002	tpy			Vessel Total	0	lb/hr	0	tpy
							Total Option 1			1.76E-01	tpy			Total Option 1			1.13E-02	tpy
							Total Option 2			1.77E-01	tpy			Total Option 2			1.14E-02	tpy

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Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Chlorobenzene							Ethylbenzene						
				Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	378 hr/yr	74.5 gal/hr	-- --	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.49E-05	lb/hr	2.82E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.12E-04	lb/hr	1.53E-04	tpy
Main Engine 1	133 hr/yr	67.0 gal/hr	-- --	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.34E-05	lb/hr	8.91E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	7.30E-04	lb/hr	4.86E-05	tpy
Main Engine 2	378 hr/yr	74.5 gal/hr	-- --	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.49E-05	lb/hr	2.82E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.12E-04	lb/hr	1.53E-04	tpy
Main Engine 2	133 hr/yr	67.0 gal/hr	-- --	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.34E-05	lb/hr	8.91E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	7.30E-04	lb/hr	4.86E-05	tpy
Thruster Engine 1	756 hr/yr	45.0 gal/hr	950 bhp	1.51E-06	lb/MMBtu fuel input	VCAPCD	9.00E-06	lb/hr	3.40E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	4.91E-04	lb/hr	1.85E-04	tpy
Thruster Engine 2	756 hr/yr	45.0 gal/hr	950 bhp	1.51E-06	lb/MMBtu fuel input	VCAPCD	9.00E-06	lb/hr	3.40E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	4.91E-04	lb/hr	1.85E-04	tpy
Thruster Engine 3	756 hr/yr	45.0 gal/hr	950 bhp	1.51E-06	lb/MMBtu fuel input	VCAPCD	9.00E-06	lb/hr	3.40E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	4.91E-04	lb/hr	1.85E-04	tpy
Generator	633.5 hr/yr	27.0 gal/hr	400 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.40E-06	lb/hr	1.71E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.94E-04	lb/hr	9.32E-05	tpy
Generator	633.5 hr/yr	27.0 gal/hr	400 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.40E-06	lb/hr	1.71E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.94E-04	lb/hr	9.32E-05	tpy
Generator	0 hr/yr	27.0 gal/hr	-- --	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.40E-06	lb/hr	0.00E+00	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	2.94E-04	lb/hr	0.00E+00	tpy
Emergency Generator	8 hr/yr	8.0 gal/hr	99 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.60E-06	lb/hr	6.40E-09	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.72E-05	lb/hr	3.49E-07	tpy
						Vessel Total	1.01E-04	lb/hr	2.10E-05	tpy			Vessel Total	5.53E-03	lb/hr	1.15E-03	tpy
Ware Vessel (WV) w/ OSV/AHTS backup																	
Main Engine 1	360 hr/yr	87.0 gal/hr	-- hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.74E-05	lb/hr	3.13E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	9.48E-04	lb/hr	1.71E-04	tpy
Main Engine 2	360 hr/yr	87.0 gal/hr	-- hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.74E-05	lb/hr	3.13E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	9.48E-04	lb/hr	1.71E-04	tpy
Main Engine 3	820 hr/yr	81.0 gal/hr	-- hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.62E-05	lb/hr	6.64E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.83E-04	lb/hr	3.62E-04	tpy
Main Engine 4	820 hr/yr	81.0 gal/hr	-- hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.62E-05	lb/hr	6.64E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	8.83E-04	lb/hr	3.62E-04	tpy
Generator 1	590 hr/yr	32.0 gal/hr	504 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.40E-06	lb/hr	1.89E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.49E-04	lb/hr	1.03E-04	tpy
Generator 2	590 hr/yr	32.0 gal/hr	504 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.40E-06	lb/hr	1.89E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.49E-04	lb/hr	1.03E-04	tpy
Generator 3	0 hr/yr	32.0 gal/hr	504 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	6.40E-06	lb/hr	0.00E+00	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.49E-04	lb/hr	0.00E+00	tpy
Emergency Generator	8 hr/yr	12.8 gal/hr	170 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	2.56E-06	lb/hr	1.02E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.40E-04	lb/hr	5.58E-07	tpy
						Vessel Total	8.90E-05	lb/hr	2.33E-05	tpy			Vessel Total	4.85E-03	lb/hr	1.27E-03	tpy
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.02E-06	lb/hr	7.25E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.65E-04	lb/hr	3.95E-06	tpy
WB-1 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.02E-06	lb/hr	7.25E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.65E-04	lb/hr	3.95E-06	tpy
WB-2 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.02E-06	lb/hr	7.25E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.65E-04	lb/hr	3.95E-06	tpy
WB-2 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.02E-06	lb/hr	7.25E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.65E-04	lb/hr	3.95E-06	tpy
WB-3 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.02E-06	lb/hr	7.25E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.65E-04	lb/hr	3.95E-06	tpy
WB-3 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.02E-06	lb/hr	7.25E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.65E-04	lb/hr	3.95E-06	tpy
WB-4 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.02E-06	lb/hr	7.25E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.65E-04	lb/hr	3.95E-06	tpy
WB-4 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	3.02E-06	lb/hr	7.25E-08	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.65E-04	lb/hr	3.95E-06	tpy
						Vessel Total	2.42E-05	lb/hr	5.80E-07	tpy			Vessel Total	1.32E-03	lb/hr	3.16E-05	tpy
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 hp	1.51E-06	lb/MMBtu fuel input	VCAPCD	9.01E-06	lb/hr	2.70E-06	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	4.91E-04	lb/hr	1.47E-04	tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.92E-06	lb/hr	5.75E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.05E-04	lb/hr	3.14E-05	tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	1.28E-06	lb/hr	3.84E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	6.97E-05	lb/hr	2.09E-05	tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	5.68E-07	lb/hr	1.70E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	3.10E-05	lb/hr	9.29E-06	tpy
						Vessel Total	1.28E-05	lb/hr	3.83E-06	tpy			Vessel Total	6.96E-04	lb/hr	2.09E-04	tpy
Spill Storage Tanker																	
Main Engine 1	4.72 hr/yr	1031.2 gal/hr	19460 bhp	1.51E-06	lb/MMBtu fuel input	VCAPCD	2.06E-04	lb/hr	4.87E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	1.12E-02	lb/hr	2.65E-05	tpy
Generator 1	29 hr/yr	42.6 gal/hr	600 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	8.52E-06	lb/hr	1.24E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	4.65E-04	lb/hr	6.74E-06	tpy
Generator 2	29 hr/yr	42.6 gal/hr	600 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	8.52E-06	lb/hr	1.24E-07	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	4.65E-04	lb/hr	6.74E-06	tpy
Generator 3	0 hr/yr	0.0 gal/hr	0 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
Emergency Generator	0 hr/yr	0.0 gal/hr	0 kW	1.51E-06	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	8.25E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
Boiler 1	52.72 hr/yr	4900.0 kg/hr	212 MMBtu/hr*	1.51E+00	lb/10^12 Btu	VCAPCD	3.20E-04	lb/hr	8.44E-06	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	2.39E-03	lb/hr	6.29E-05	tpy
Boiler 2	0 hr/yr	0.0 kg/hr	0 MMBtu/hr*	1.51E+00	lb/10^12 Btu	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy
						Vessel Total	5.44E-04	lb/hr	9.18E-06	tpy			Vessel Total	1.46E-02	lb/hr	1.03E-04	tpy
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2880158 gal/yr*	N A	none							N A		EPA TANKS	8.33E-09	lb/hr	2.00E-05	tpy
						Vessel Total	0	lb/hr	0	tpy			Vessel Total	8.33333E-09	lb/hr	0.00002	tpy
						Total Option 1			3.69E-04	tpy			Total Option 1			1.88E-02	tpy
						Total Option 2			3.72E-04	tpy			Total Option 2			1.89E-02	tpy

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Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Formaldehyde							Hexane						
				Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	378 hr/yr	74.5 gal/hr	-- --	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	8.64E-03	lb/hr	1.63E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.00E-03	lb/hr	3.79E-04	tpy
Main Engine 1	133 hr/yr	67.0 gal/hr	-- --	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	7.77E-03	lb/hr	5.17E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.80E-03	lb/hr	1.20E-04	tpy
Main Engine 2	378 hr/yr	74.5 gal/hr	-- --	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	8.64E-03	lb/hr	1.63E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.00E-03	lb/hr	3.79E-04	tpy
Main Engine 2	133 hr/yr	67.0 gal/hr	-- --	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	7.77E-03	lb/hr	5.17E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.80E-03	lb/hr	1.20E-04	tpy
Thruster Engine 1	756 hr/yr	45.0 gal/hr	950 bhp	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	5.22E-03	lb/hr	1.97E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.21E-03	lb/hr	4.58E-04	tpy
Thruster Engine 2	756 hr/yr	45.0 gal/hr	950 bhp	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	5.22E-03	lb/hr	1.97E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.21E-03	lb/hr	4.58E-04	tpy
Thruster Engine 3	756 hr/yr	45.0 gal/hr	950 bhp	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	5.22E-03	lb/hr	1.97E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.21E-03	lb/hr	4.58E-04	tpy
Generator	633.5 hr/yr	27.0 gal/hr	400 kW	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.21E-03	lb/hr	1.33E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.26E-04	lb/hr	2.30E-04	tpy
Generator	633.5 hr/yr	27.0 gal/hr	400 kW	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.21E-03	lb/hr	1.33E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.26E-04	lb/hr	2.30E-04	tpy
Generator	0 hr/yr	27.0 gal/hr	-- --	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.21E-03	lb/hr	0.00E+00	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.26E-04	lb/hr	0.00E+00	tpy
Emergency Generator	8 hr/yr	8.0 gal/hr	99 kW	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	1.25E-03	lb/hr	4.99E-06	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.15E-04	lb/hr	8.61E-07	tpy
						Vessel Total	6.24E-02	lb/hr	1.29E-02	tpy			Vessel Total	1.36E-02	lb/hr	2.83E-03	tpy
Ware Vessel (WV) w/ OSV/AHTS backup																	
Main Engine 1	360 hr/yr	87.0 gal/hr	-- hp	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.01E-02	lb/hr	1.82E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.34E-03	lb/hr	4.21E-04	tpy
Main Engine 2	360 hr/yr	87.0 gal/hr	-- hp	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.01E-02	lb/hr	1.82E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.34E-03	lb/hr	4.21E-04	tpy
Main Engine 3	820 hr/yr	81.0 gal/hr	-- hp	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	9.40E-03	lb/hr	3.85E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.18E-03	lb/hr	8.93E-04	tpy
Main Engine 4	820 hr/yr	81.0 gal/hr	-- hp	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	9.40E-03	lb/hr	3.85E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.18E-03	lb/hr	8.93E-04	tpy
Generator 1	590 hr/yr	32.0 gal/hr	504 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.71E-03	lb/hr	1.10E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.61E-04	lb/hr	2.54E-04	tpy
Generator 2	590 hr/yr	32.0 gal/hr	504 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.71E-03	lb/hr	1.10E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.61E-04	lb/hr	2.54E-04	tpy
Generator 3	0 hr/yr	32.0 gal/hr	504 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	3.71E-03	lb/hr	0.00E+00	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	8.61E-04	lb/hr	0.00E+00	tpy
Emergency Generator	8 hr/yr	12.8 gal/hr	170 kW	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	2.00E-03	lb/hr	7.98E-06	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	3.44E-04	lb/hr	1.38E-06	tpy
						Vessel Total	5.21E-02	lb/hr	1.35E-02	tpy			Vessel Total	1.20E-02	lb/hr	3.14E-03	tpy
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	2.35E-03	lb/hr	5.65E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.06E-04	lb/hr	9.75E-06	tpy
WB-1 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	2.35E-03	lb/hr	5.65E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.06E-04	lb/hr	9.75E-06	tpy
WB-2 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	2.35E-03	lb/hr	5.65E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.06E-04	lb/hr	9.75E-06	tpy
WB-2 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	2.35E-03	lb/hr	5.65E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.06E-04	lb/hr	9.75E-06	tpy
WB-3 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	2.35E-03	lb/hr	5.65E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.06E-04	lb/hr	9.75E-06	tpy
WB-3 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	2.35E-03	lb/hr	5.65E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.06E-04	lb/hr	9.75E-06	tpy
WB-4 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	2.35E-03	lb/hr	5.65E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.06E-04	lb/hr	9.75E-06	tpy
WB-4 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	2.35E-03	lb/hr	5.65E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	4.06E-04	lb/hr	9.75E-06	tpy
						Vessel Total	1.88E-02	lb/hr	4.52E-04	tpy			Vessel Total	3.25E-03	lb/hr	7.80E-05	tpy
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 hp	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	5.22E-03	lb/hr	1.57E-03	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.21E-03	lb/hr	3.63E-04	tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 kW	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	1.49E-03	lb/hr	4.48E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.58E-04	lb/hr	7.74E-05	tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 kW	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	9.97E-04	lb/hr	2.99E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.72E-04	lb/hr	5.16E-05	tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 kW	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	4.43E-04	lb/hr	1.33E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	7.64E-05	lb/hr	2.29E-05	tpy
						Vessel Total	8.16E-03	lb/hr	2.45E-03	tpy			Vessel Total	1.72E-03	lb/hr	5.15E-04	tpy
Spill Storage Tanker																	
Main Engine 1	4.72 hr/yr	1031.2 gal/hr	19460 bhp	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	1.20E-01	lb/hr	2.82E-04	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	2.77E-02	lb/hr	6.55E-05	tpy
Generator 1	29 hr/yr	42.6 gal/hr	600 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	4.94E-03	lb/hr	7.17E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.15E-03	lb/hr	1.66E-05	tpy
Generator 2	29 hr/yr	42.6 gal/hr	600 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	4.94E-03	lb/hr	7.17E-05	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	1.15E-03	lb/hr	1.66E-05	tpy
Generator 3	0 hr/yr	0.0 gal/hr	0 kW	8.78E-04	lb/MMBtu fuel input	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
Emergency Generator	0 hr/yr	0.0 gal/hr	0 kW	1.18E-03	lb/MMBtu fuel input	AP-42 3.3-2	0.00E+00	lb/hr	0.00E+00	tpy	2.04E-04	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
Boiler 1	52.72 hr/yr	4900.0 kg/hr	212 MMBtu/hr*	3.49E-01	lbs/Mgal	CARB-CATEF	5.59E-04	lb/hr	1.47E-05	tpy	9.16E+00	lb/10^12 Btu	CARB-CATEF	1.94E-03	lb/hr	5.11E-05	tpy
Boiler 2	0 hr/yr	0.0 kg/hr	0 MMBtu/hr*	3.49E-01	lbs/Mgal	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy	9.16E+00	lb/10^12 Btu	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy
						Vessel Total	1.30E-01	lb/hr	4.40E-04	tpy			Vessel Total	3.20E-02	lb/hr	1.50E-04	tpy
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2880158 gal/yr*	N A	none							N A		EPA TANKS	2.08E-09	lb/hr	5.00E-06	tpy
						Vessel Total	0	lb/hr	0	tpy			Vessel Total	2.08333E-09	lb/hr	0.000005	tpy
						Total Option 1			2.35E-01	tpy			Total Option 1			4.60E-02	tpy
						Total Option 2			2.36E-01	tpy			Total Option 2			4.63E-02	tpy

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					Hydrochloric acid (Hydrogen Chloride)							Naphthalene						
Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Offshore Supply Vessels (OSV1 & OSV2)																		
0 Main Engine 1	378 hr/yr	74.5 gal/hr	-- --		1.41E-03	lb/MMBtu fuel input	VCAPCD	1.39E-02	lb/hr	2.62E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.28E-03	lb/hr	2.42E-04	tpy
0 Main Engine 1	133 hr/yr	67.0 gal/hr	-- --		1.41E-03	lb/MMBtu fuel input	VCAPCD	1.25E-02	lb/hr	8.30E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.15E-03	lb/hr	7.65E-05	tpy
0 Main Engine 2	378 hr/yr	74.5 gal/hr	-- --		1.41E-03	lb/MMBtu fuel input	VCAPCD	1.39E-02	lb/hr	2.62E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.28E-03	lb/hr	2.42E-04	tpy
0 Main Engine 2	133 hr/yr	67.0 gal/hr	-- --		1.41E-03	lb/MMBtu fuel input	VCAPCD	1.25E-02	lb/hr	8.30E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.15E-03	lb/hr	7.65E-05	tpy
0 Thruster Engine 1	756 hr/yr	45.0 gal/hr	950 bhp		1.41E-03	lb/MMBtu fuel input	VCAPCD	8.38E-03	lb/hr	3.17E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	7.73E-04	lb/hr	2.92E-04	tpy
0 Thruster Engine 2	756 hr/yr	45.0 gal/hr	950 bhp		1.41E-03	lb/MMBtu fuel input	VCAPCD	8.38E-03	lb/hr	3.17E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	7.73E-04	lb/hr	2.92E-04	tpy
0 Thruster Engine 3	756 hr/yr	45.0 gal/hr	950 bhp		1.41E-03	lb/MMBtu fuel input	VCAPCD	8.38E-03	lb/hr	3.17E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-5	7.73E-04	lb/hr	2.92E-04	tpy
0 Generator	633.5 hr/yr	27.0 gal/hr	400 kW		1.41E-03	lb/MMBtu fuel input	VCAPCD	5.03E-03	lb/hr	1.59E-03	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.02E-04	lb/hr	9.58E-05	tpy
0 Generator	633.5 hr/yr	27.0 gal/hr	400 kW		1.41E-03	lb/MMBtu fuel input	VCAPCD	5.03E-03	lb/hr	1.59E-03	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.02E-04	lb/hr	9.58E-05	tpy
0 Generator	0 hr/yr	27.0 gal/hr	-- --		1.41E-03	lb/MMBtu fuel input	VCAPCD	5.03E-03	lb/hr	0.00E+00	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.02E-04	lb/hr	0.00E+00	tpy
0 Emergency Generator	8 hr/yr	8.0 gal/hr	99 kW		1.41E-03	lb/MMBtu fuel input	VCAPCD	1.49E-03	lb/hr	5.96E-06	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	8.96E-05	lb/hr	3.58E-07	tpy
							Vessel Total	9.45E-02	lb/hr	1.96E-02	tpy			Vessel Total	8.18E-03	lb/hr	1.70E-03	tpy
Ware Vessel (WV) w/ OSV/AHTS backup																		
0 Main Engine 1	360 hr/yr	87.0 gal/hr	-- hp		1.41E-03	lb/MMBtu fuel input	VCAPCD	1.62E-02	lb/hr	2.92E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.49E-03	lb/hr	2.69E-04	tpy
0 Main Engine 2	360 hr/yr	87.0 gal/hr	-- hp		1.41E-03	lb/MMBtu fuel input	VCAPCD	1.62E-02	lb/hr	2.92E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.49E-03	lb/hr	2.69E-04	tpy
0 Main Engine 3	820 hr/yr	81.0 gal/hr	-- hp		1.41E-03	lb/MMBtu fuel input	VCAPCD	1.51E-02	lb/hr	6.19E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.39E-03	lb/hr	5.70E-04	tpy
0 Main Engine 4	820 hr/yr	81.0 gal/hr	-- hp		1.41E-03	lb/MMBtu fuel input	VCAPCD	1.51E-02	lb/hr	6.19E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.39E-03	lb/hr	5.70E-04	tpy
0 Generator 1	590 hr/yr	32.0 gal/hr	504 kW		1.41E-03	lb/MMBtu fuel input	VCAPCD	5.96E-03	lb/hr	1.76E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	5.50E-04	lb/hr	1.62E-04	tpy
0 Generator 2	590 hr/yr	32.0 gal/hr	504 kW		1.41E-03	lb/MMBtu fuel input	VCAPCD	5.96E-03	lb/hr	1.76E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	5.50E-04	lb/hr	1.62E-04	tpy
0 Generator 3	0 hr/yr	32.0 gal/hr	504 kW		1.41E-03	lb/MMBtu fuel input	VCAPCD	5.96E-03	lb/hr	0.00E+00	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	5.50E-04	lb/hr	0.00E+00	tpy
0 Emergency Generator	8 hr/yr	12.8 gal/hr	170 kW		1.41E-03	lb/MMBtu fuel input	VCAPCD	2.38E-03	lb/hr	9.54E-06	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.43E-04	lb/hr	5.74E-07	tpy
							Vessel Total	8.29E-02	lb/hr	2.17E-02	tpy			Vessel Total	7.56E-03	lb/hr	2.00E-03	tpy
34' boom work boats - 4																		
0 WB-1 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp		1.41E-03	lb/MMBtu fuel input	VCAPCD	2.81E-03	lb/hr	6.75E-05	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.69E-04	lb/hr	4.06E-06	tpy
0 WB-1 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp		1.41E-03	lb/MMBtu fuel input	VCAPCD	2.81E-03	lb/hr	6.75E-05	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.69E-04	lb/hr	4.06E-06	tpy
0 WB-2 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp		1.41E-03	lb/MMBtu fuel input	VCAPCD	2.81E-03	lb/hr	6.75E-05	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.69E-04	lb/hr	4.06E-06	tpy
0 WB-2 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp		1.41E-03	lb/MMBtu fuel input	VCAPCD	2.81E-03	lb/hr	6.75E-05	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.69E-04	lb/hr	4.06E-06	tpy
0 WB-3 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp		1.41E-03	lb/MMBtu fuel input	VCAPCD	2.81E-03	lb/hr	6.75E-05	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.69E-04	lb/hr	4.06E-06	tpy
0 WB-3 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp		1.41E-03	lb/MMBtu fuel input	VCAPCD	2.81E-03	lb/hr	6.75E-05	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.69E-04	lb/hr	4.06E-06	tpy
0 WB-4 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp		1.41E-03	lb/MMBtu fuel input	VCAPCD	2.81E-03	lb/hr	6.75E-05	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.69E-04	lb/hr	4.06E-06	tpy
0 WB-4 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp		1.41E-03	lb/MMBtu fuel input	VCAPCD	2.81E-03	lb/hr	6.75E-05	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.69E-04	lb/hr	4.06E-06	tpy
							Vessel Total	2.25E-02	lb/hr	5.40E-04	tpy			Vessel Total	1.35E-03	lb/hr	3.25E-05	tpy
Marine Research Vessel																		
0 Main Engine	600 hr/yr	45.0 gal/hr	850 hp		1.41E-03	lb/MMBtu fuel input	VCAPCD	8.39E-03	lb/hr	2.52E-03	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	7.74E-04	lb/hr	2.32E-04	tpy
0 Generator 1	600 hr/yr	9.6 gal/hr	135 kW		1.41E-03	lb/MMBtu fuel input	VCAPCD	1.79E-03	lb/hr	5.36E-04	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	1.07E-04	lb/hr	3.22E-05	tpy
0 Generator 2	600 hr/yr	6.4 gal/hr	90 kW		1.41E-03	lb/MMBtu fuel input	VCAPCD	1.19E-03	lb/hr	3.57E-04	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	7.16E-05	lb/hr	2.15E-05	tpy
0 Generator 3	600 hr/yr	2.8 gal/hr	40 kW		1.41E-03	lb/MMBtu fuel input	VCAPCD	5.29E-04	lb/hr	1.59E-04	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	3.18E-05	lb/hr	9.55E-06	tpy
							Vessel Total	1.19E-02	lb/hr	3.57E-03	tpy			Vessel Total	9.84E-04	lb/hr	2.95E-04	tpy
Spill Storage Tanker																		
0 Main Engine 1	4.72 hr/yr	1031.2 gal/hr	19460 bhp		1.41E-03	lb/MMBtu fuel input	VCAPCD	1.92E-01	lb/hr	4.53E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.77E-02	lb/hr	4.18E-05	tpy
0 Generator 1	29 hr/yr	42.6 gal/hr	600 kW		1.41E-03	lb/MMBtu fuel input	VCAPCD	7.94E-03	lb/hr	1.15E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	7.32E-04	lb/hr	1.06E-05	tpy
0 Generator 2	29 hr/yr	42.6 gal/hr	600 kW		1.41E-03	lb/MMBtu fuel input	VCAPCD	7.94E-03	lb/hr	1.15E-04	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	7.32E-04	lb/hr	1.06E-05	tpy
0 Generator 3	0 hr/yr	0.0 gal/hr	0 kW		1.41E-03	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	1.30E-04	lb/MMBtu fuel input	AP-42 3.4-4	0.00E+00	lb/hr	0.00E+00	tpy
0 Emergency Generator	0 hr/yr	0.0 gal/hr	0 kW		1.41E-03	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	8.48E-05	lb/MMBtu fuel input	AP-42 3.3-2	0.00E+00	lb/hr	0.00E+00	tpy
0 Boiler 1	52.72 hr/yr	4900.0 kg/hr	212 MMBtu/hr*		1.41E+03	lb/10^12 Btu	VCAPCD	2.98E-01	lb/hr	7.87E-03	tpy	2.78E+03	lb/10^12 Btu	CARB-CATEF	5.88E-01	lb/hr	1.55E-02	tpy
0 Boiler 2	0 hr/yr	0.0 kg/hr	0 MMBtu/hr*		1.41E+03	lb/10^12 Btu	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	2.78E+03	lb/10^12 Btu	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy
							Vessel Total	5.06E-01	lb/hr	8.55E-03	tpy			Vessel Total	6.07E-01	lb/hr	1.56E-02	tpy
All Vessels Fuel Tanks																		
0 Fuel Tank	2400 hr/yr	2880158 gal/yr*	N A		none							none						
							Vessel Total	0	lb/hr	0	tpy			Vessel Total	0	lb/hr	0	tpy
							Total Option 1			9.31E-01	tpy			Total Option 1			8.17E-02	tpy
							Total Option 2			9.33E-01	tpy			Total Option 2			8.20E-02	tpy

Devil's Paw Prospect - Annual Emissions Inventory - HAPs

Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Toluene							Xylenes (mixed isomers)						
				Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	378 hr/yr	74.5 gal/hr	-- --	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.77E-03	lb/hr	5.23E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.90E-03	lb/hr	3.59E-04	tpy
Main Engine 1	133 hr/yr	67.0 gal/hr	-- --	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.49E-03	lb/hr	1.65E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.71E-03	lb/hr	1.14E-04	tpy
Main Engine 2	378 hr/yr	74.5 gal/hr	-- --	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.77E-03	lb/hr	5.23E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.90E-03	lb/hr	3.59E-04	tpy
Main Engine 2	133 hr/yr	67.0 gal/hr	-- --	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.49E-03	lb/hr	1.65E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.71E-03	lb/hr	1.14E-04	tpy
Thruster Engine 1	756 hr/yr	45.0 gal/hr	950 bhp	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.67E-03	lb/hr	6.31E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.15E-03	lb/hr	4.34E-04	tpy
Thruster Engine 2	756 hr/yr	45.0 gal/hr	950 bhp	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.67E-03	lb/hr	6.31E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.15E-03	lb/hr	4.34E-04	tpy
Thruster Engine 3	756 hr/yr	45.0 gal/hr	950 bhp	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.67E-03	lb/hr	6.31E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.15E-03	lb/hr	4.34E-04	tpy
Generator	633.5 hr/yr	27.0 gal/hr	400 kW	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.46E-03	lb/hr	4.62E-04	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.02E-03	lb/hr	3.22E-04	tpy
Generator	633.5 hr/yr	27.0 gal/hr	400 kW	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.46E-03	lb/hr	4.62E-04	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.02E-03	lb/hr	3.22E-04	tpy
Generator	0 hr/yr	27.0 gal/hr	-- --	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.46E-03	lb/hr	0.00E+00	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.02E-03	lb/hr	0.00E+00	tpy
Emergency Generator	8 hr/yr	8.0 gal/hr	99 kW	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	4.32E-04	lb/hr	1.73E-06	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.01E-04	lb/hr	1.20E-06	tpy
						Vessel Total	2.03E-02	lb/hr	4.20E-03	tpy			Vessel Total	1.40E-02	lb/hr	2.89E-03	tpy
Ware Vessel (WV) w/ OSV/AHTS backup																	
Main Engine 1	360 hr/yr	87.0 gal/hr	-- hp	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.23E-03	lb/hr	5.81E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.22E-03	lb/hr	3.99E-04	tpy
Main Engine 2	360 hr/yr	87.0 gal/hr	-- hp	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.23E-03	lb/hr	5.81E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.22E-03	lb/hr	3.99E-04	tpy
Main Engine 3	820 hr/yr	81.0 gal/hr	-- hp	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.01E-03	lb/hr	1.23E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.07E-03	lb/hr	8.47E-04	tpy
Main Engine 4	820 hr/yr	81.0 gal/hr	-- hp	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.01E-03	lb/hr	1.23E-03	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.07E-03	lb/hr	8.47E-04	tpy
Generator 1	590 hr/yr	32.0 gal/hr	504 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.19E-03	lb/hr	3.50E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	8.16E-04	lb/hr	2.41E-04	tpy
Generator 2	590 hr/yr	32.0 gal/hr	504 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.19E-03	lb/hr	3.50E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	8.16E-04	lb/hr	2.41E-04	tpy
Generator 3	0 hr/yr	32.0 gal/hr	504 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.19E-03	lb/hr	0.00E+00	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	8.16E-04	lb/hr	0.00E+00	tpy
Emergency Generator	8 hr/yr	12.8 gal/hr	170 kW	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.92E-04	lb/hr	2.77E-06	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	4.82E-04	lb/hr	1.93E-06	tpy
						Vessel Total	1.67E-02	lb/hr	4.33E-03	tpy			Vessel Total	1.15E-02	lb/hr	2.98E-03	tpy
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	8.16E-04	lb/hr	1.96E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.68E-04	lb/hr	1.36E-05	tpy
WB-1 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	8.16E-04	lb/hr	1.96E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.68E-04	lb/hr	1.36E-05	tpy
WB-2 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	8.16E-04	lb/hr	1.96E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.68E-04	lb/hr	1.36E-05	tpy
WB-2 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	8.16E-04	lb/hr	1.96E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.68E-04	lb/hr	1.36E-05	tpy
WB-3 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	8.16E-04	lb/hr	1.96E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.68E-04	lb/hr	1.36E-05	tpy
WB-3 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	8.16E-04	lb/hr	1.96E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.68E-04	lb/hr	1.36E-05	tpy
WB-4 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	8.16E-04	lb/hr	1.96E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.68E-04	lb/hr	1.36E-05	tpy
WB-4 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	8.16E-04	lb/hr	1.96E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.68E-04	lb/hr	1.36E-05	tpy
						Vessel Total	6.53E-03	lb/hr	1.57E-04	tpy			Vessel Total	4.55E-03	lb/hr	1.09E-04	tpy
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 hp	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.67E-03	lb/hr	5.02E-04	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.15E-03	lb/hr	3.45E-04	tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 kW	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.18E-04	lb/hr	1.55E-04	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.61E-04	lb/hr	1.08E-04	tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 kW	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.45E-04	lb/hr	1.04E-04	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.41E-04	lb/hr	7.22E-05	tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 kW	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.54E-04	lb/hr	4.61E-05	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.07E-04	lb/hr	3.21E-05	tpy
						Vessel Total	2.69E-03	lb/hr	8.07E-04	tpy			Vessel Total	1.86E-03	lb/hr	5.57E-04	tpy
Spill Storage Tanker																	
Main Engine 1	4.72 hr/yr	1031.2 gal/hr	19460 bhp	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	3.83E-02	lb/hr	9.03E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	2.63E-02	lb/hr	6.20E-05	tpy
Generator 1	29 hr/yr	42.6 gal/hr	600 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.58E-03	lb/hr	2.29E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.09E-03	lb/hr	1.58E-05	tpy
Generator 2	29 hr/yr	42.6 gal/hr	600 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.58E-03	lb/hr	2.29E-05	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	1.09E-03	lb/hr	1.58E-05	tpy
Generator 3	0 hr/yr	0.0 gal/hr	0 kW	2.81E-04	lb/MMBtu fuel input	AP-42 3.4-3	0.00E+00	lb/hr	0.00E+00	tpy	1.93E-04	lb/MMBtu fuel input	AP-42 3.4-3	0.00E+00	lb/hr	0.00E+00	tpy
Emergency Generator	0 hr/yr	0.0 gal/hr	0 kW	4.09E-04	lb/MMBtu fuel input	AP-42 3.3-2	0.00E+00	lb/hr	0.00E+00	tpy	2.85E-04	lb/MMBtu fuel input	AP-42 3.3-2	0.00E+00	lb/hr	0.00E+00	tpy
Boiler 1	52.72 hr/yr	4900.0 kg/hr	212 MMBtu/hr*	1.14E+01	lb/10^12 Btu	CARB-CATEF	2.40E-03	lb/hr	6.33E-05	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	2.39E-03	lb/hr	6.29E-05	tpy
Boiler 2	0 hr/yr	0.0 kg/hr	0 MMBtu/hr*	1.14E+01	lb/10^12 Btu	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy	1.13E+01	lb/10^12 Btu	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy
						Vessel Total	4.38E-02	lb/hr	2.00E-04	tpy			Vessel Total	3.08E-02	lb/hr	1.56E-04	tpy
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2880158 gal/yr*	N A	N A		EPA TANKS	7.71E-08	lb/hr	1.85E-04	tpy	none						
						Vessel Total	7.70833E-08	lb/hr	0.000185	tpy			Vessel Total	0	lb/hr	0	tpy
						Total Option 1			6.45E-02	tpy			Total Option 1			4.42E-02	tpy
						Total Option 2			6.47E-02	tpy			Total Option 2			4.43E-02	tpy

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Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	o-Xylene Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	m-Xylene Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Offshore Supply Vessels (OSV1 & OSV2)																	
Main Engine 1	378 hr/yr	74.5 gal/hr	-- --	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.56E-03	lb/hr	2.94E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.61E-03	lb/hr	3.04E-04	tpy
Main Engine 1	133 hr/yr	67.0 gal/hr	-- --	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.40E-03	lb/hr	9.31E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.45E-03	lb/hr	9.62E-05	tpy
Main Engine 2	378 hr/yr	74.5 gal/hr	-- --	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.56E-03	lb/hr	2.94E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.61E-03	lb/hr	3.04E-04	tpy
Main Engine 2	133 hr/yr	67.0 gal/hr	-- --	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.40E-03	lb/hr	9.31E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.45E-03	lb/hr	9.62E-05	tpy
Thruster Engine 1	756 hr/yr	45.0 gal/hr	950 bhp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	9.41E-04	lb/hr	3.56E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	9.72E-04	lb/hr	3.67E-04	tpy
Thruster Engine 2	756 hr/yr	45.0 gal/hr	950 bhp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	9.41E-04	lb/hr	3.56E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	9.72E-04	lb/hr	3.67E-04	tpy
Thruster Engine 3	756 hr/yr	45.0 gal/hr	950 bhp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	9.41E-04	lb/hr	3.56E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	9.72E-04	lb/hr	3.67E-04	tpy
Generator	633.5 hr/yr	27.0 gal/hr	400 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.64E-04	lb/hr	1.79E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.83E-04	lb/hr	1.85E-04	tpy
Generator	633.5 hr/yr	27.0 gal/hr	400 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.64E-04	lb/hr	1.79E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.83E-04	lb/hr	1.85E-04	tpy
Generator	0 hr/yr	27.0 gal/hr	-- --	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.64E-04	lb/hr	0.00E+00	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	5.83E-04	lb/hr	0.00E+00	tpy
Emergency Generator	8 hr/yr	8.0 gal/hr	99 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.67E-04	lb/hr	6.69E-07	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.73E-04	lb/hr	6.91E-07	tpy
						Vessel Total	1.06E-02	lb/hr	2.20E-03	tpy			Vessel Total	1.10E-02	lb/hr	2.27E-03	tpy
Ware Vessel (WV) w/ OSV/AHTS backup																	
Main Engine 1	360 hr/yr	87.0 gal/hr	-- hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.82E-03	lb/hr	3.27E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.88E-03	lb/hr	3.38E-04	tpy
Main Engine 2	360 hr/yr	87.0 gal/hr	-- hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.82E-03	lb/hr	3.27E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.88E-03	lb/hr	3.38E-04	tpy
Main Engine 3	820 hr/yr	81.0 gal/hr	-- hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.69E-03	lb/hr	6.94E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.75E-03	lb/hr	7.17E-04	tpy
Main Engine 4	820 hr/yr	81.0 gal/hr	-- hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.69E-03	lb/hr	6.94E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.75E-03	lb/hr	7.17E-04	tpy
Generator 1	590 hr/yr	32.0 gal/hr	504 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.69E-04	lb/hr	1.97E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.91E-04	lb/hr	2.04E-04	tpy
Generator 2	590 hr/yr	32.0 gal/hr	504 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.69E-04	lb/hr	1.97E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.91E-04	lb/hr	2.04E-04	tpy
Generator 3	0 hr/yr	32.0 gal/hr	504 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	6.69E-04	lb/hr	0.00E+00	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.91E-04	lb/hr	0.00E+00	tpy
Emergency Generator	8 hr/yr	12.8 gal/hr	170 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	2.68E-04	lb/hr	1.07E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	2.76E-04	lb/hr	1.11E-06	tpy
						Vessel Total	9.30E-03	lb/hr	2.44E-03	tpy			Vessel Total	9.61E-03	lb/hr	2.52E-03	tpy
34' boom work boats - 4																	
WB-1 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.16E-04	lb/hr	7.57E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.26E-04	lb/hr	7.83E-06	tpy
WB-1 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.16E-04	lb/hr	7.57E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.26E-04	lb/hr	7.83E-06	tpy
WB-2 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.16E-04	lb/hr	7.57E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.26E-04	lb/hr	7.83E-06	tpy
WB-2 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.16E-04	lb/hr	7.57E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.26E-04	lb/hr	7.83E-06	tpy
WB-3 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.16E-04	lb/hr	7.57E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.26E-04	lb/hr	7.83E-06	tpy
WB-3 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.16E-04	lb/hr	7.57E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.26E-04	lb/hr	7.83E-06	tpy
WB-4 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.16E-04	lb/hr	7.57E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.26E-04	lb/hr	7.83E-06	tpy
WB-4 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	3.16E-04	lb/hr	7.57E-06	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	3.26E-04	lb/hr	7.83E-06	tpy
						Vessel Total	2.52E-03	lb/hr	6.06E-05	tpy			Vessel Total	2.61E-03	lb/hr	6.26E-05	tpy
Marine Research Vessel																	
Main Engine	600 hr/yr	45.0 gal/hr	850 hp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	9.41E-04	lb/hr	2.82E-04	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	9.73E-04	lb/hr	2.92E-04	tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	2.00E-04	lb/hr	6.01E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	2.07E-04	lb/hr	6.21E-05	tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	1.34E-04	lb/hr	4.01E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	1.38E-04	lb/hr	4.14E-05	tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	5.94E-05	lb/hr	1.78E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	6.14E-05	lb/hr	1.84E-05	tpy
						Vessel Total	1.33E-03	lb/hr	4.00E-04	tpy			Vessel Total	1.38E-03	lb/hr	4.14E-04	tpy
Spill Storage Tanker																	
Main Engine 1	4.72 hr/yr	1031.2 gal/hr	19460 bhp	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	2.16E-02	lb/hr	5.09E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	2.23E-02	lb/hr	5.26E-05	tpy
Generator 1	29 hr/yr	42.6 gal/hr	600 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	8.91E-04	lb/hr	1.29E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	9.21E-04	lb/hr	1.33E-05	tpy
Generator 2	29 hr/yr	42.6 gal/hr	600 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	8.91E-04	lb/hr	1.29E-05	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	9.21E-04	lb/hr	1.33E-05	tpy
Generator 3	0 hr/yr	0.0 gal/hr	0 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy
Emergency Generator	0 hr/yr	0.0 gal/hr	0 kW	1.58E-04	lb/MMBtu fuel input	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy	1.64E-04	lb/MMBtu fuel input	CARB-CATEF	0.00E+00	lb/hr	0.00E+00	tpy
Boiler 1	52.72 hr/yr	4900.0 kg/hr	212 MMBtu/hr*	none							none						
Boiler 2	0 hr/yr	0.0 kg/hr	0 MMBtu/hr*	none							none						
						Vessel Total	2.33E-02	lb/hr	7.67E-05	tpy			Vessel Total	2.41E-02	lb/hr	7.93E-05	tpy
All Vessels Fuel Tanks																	
Fuel Tank	2400 hr/yr	2880158 gal/yr*	N A	none							N A		EPA TANKS	1.58E-07	lb/hr	3.80E-04	tpy
						Vessel Total	0	lb/hr	0	tpy			Vessel Total	1.58333E-07	lb/hr	0.00038	tpy
						Total Option 1			3.56E-02	tpy			Total Option 1			3.73E-02	tpy
						Total Option 2			3.58E-02	tpy			Total Option 2			3.76E-02	tpy

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				Arsenic Compounds (inorganic including arsine)							Beryllium Compounds						
Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Offshore Supply Vessels (OSV1 & OSV2)																	
0 Main Engine 1	378 hr/yr	74.5 gal/hr	-- --	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.19E-04	lb/hr	2.25E-05	tpy	none						
0 Main Engine 1	133 hr/yr	67.0 gal/hr	-- --	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.07E-04	lb/hr	7.13E-06	tpy	none						
0 Main Engine 2	378 hr/yr	74.5 gal/hr	-- --	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.19E-04	lb/hr	2.25E-05	tpy	none						
0 Main Engine 2	133 hr/yr	67.0 gal/hr	-- --	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.07E-04	lb/hr	7.13E-06	tpy	none						
0 Thruster Engine 1	756 hr/yr	45.0 gal/hr	950 bhp	1.21E-05	lb/MMBtu fuel input	VCAPCD	7.20E-05	lb/hr	2.72E-05	tpy	none						
0 Thruster Engine 2	756 hr/yr	45.0 gal/hr	950 bhp	1.21E-05	lb/MMBtu fuel input	VCAPCD	7.20E-05	lb/hr	2.72E-05	tpy	none						
0 Thruster Engine 3	756 hr/yr	45.0 gal/hr	950 bhp	1.21E-05	lb/MMBtu fuel input	VCAPCD	7.20E-05	lb/hr	2.72E-05	tpy	none						
0 Generator	633.5 hr/yr	27.0 gal/hr	400 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.32E-05	lb/hr	1.37E-05	tpy	none						
0 Generator	633.5 hr/yr	27.0 gal/hr	400 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.32E-05	lb/hr	1.37E-05	tpy	none						
0 Generator	0 hr/yr	27.0 gal/hr	-- --	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.32E-05	lb/hr	0.00E+00	tpy	none						
0 Emergency Generator	8 hr/yr	8.0 gal/hr	99 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.28E-05	lb/hr	5.12E-08	tpy	none						
						Vessel Total	8.11E-04	lb/hr	1.68E-04	tpy			Vessel Total	0.00E+00	lb/hr	0.00E+00	tpy
Ware Vessel (WV) w/ OSV/AHTS backup																	
0 Main Engine 1	360 hr/yr	87.0 gal/hr	-- hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.39E-04	lb/hr	2.51E-05	tpy	none						
0 Main Engine 2	360 hr/yr	87.0 gal/hr	-- hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.39E-04	lb/hr	2.51E-05	tpy	none						
0 Main Engine 3	820 hr/yr	81.0 gal/hr	-- hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.30E-04	lb/hr	5.31E-05	tpy	none						
0 Main Engine 4	820 hr/yr	81.0 gal/hr	-- hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.30E-04	lb/hr	5.31E-05	tpy	none						
0 Generator 1	590 hr/yr	32.0 gal/hr	504 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	5.12E-05	lb/hr	1.51E-05	tpy	none						
0 Generator 2	590 hr/yr	32.0 gal/hr	504 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	5.12E-05	lb/hr	1.51E-05	tpy	none						
0 Generator 3	0 hr/yr	32.0 gal/hr	504 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	5.12E-05	lb/hr	0.00E+00	tpy	none						
0 Emergency Generator	8 hr/yr	12.8 gal/hr	170 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.05E-05	lb/hr	8.19E-08	tpy	none						
						Vessel Total	7.12E-04	lb/hr	1.87E-04	tpy			Vessel Total	0.00E+00	lb/hr	0.00E+00	tpy
34' boom work boats - 4																	
0 WB-1 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.42E-05	lb/hr	5.80E-07	tpy	none						
0 WB-1 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.42E-05	lb/hr	5.80E-07	tpy	none						
0 WB-2 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.42E-05	lb/hr	5.80E-07	tpy	none						
0 WB-2 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.42E-05	lb/hr	5.80E-07	tpy	none						
0 WB-3 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.42E-05	lb/hr	5.80E-07	tpy	none						
0 WB-3 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.42E-05	lb/hr	5.80E-07	tpy	none						
0 WB-4 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.42E-05	lb/hr	5.80E-07	tpy	none						
0 WB-4 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	2.42E-05	lb/hr	5.80E-07	tpy	none						
						Vessel Total	1.93E-04	lb/hr	4.64E-06	tpy			Vessel Total	0.00E+00	lb/hr	0.00E+00	tpy
Marine Research Vessel																	
0 Main Engine	600 hr/yr	45.0 gal/hr	850 hp	1.21E-05	lb/MMBtu fuel input	VCAPCD	7.21E-05	lb/hr	2.16E-05	tpy	none						
0 Generator 1	600 hr/yr	9.6 gal/hr	135 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.53E-05	lb/hr	4.60E-06	tpy	none						
0 Generator 2	600 hr/yr	6.4 gal/hr	90 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.02E-05	lb/hr	3.07E-06	tpy	none						
0 Generator 3	600 hr/yr	2.8 gal/hr	40 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	4.55E-06	lb/hr	1.36E-06	tpy	none						
						Vessel Total	1.02E-04	lb/hr	3.07E-05	tpy			Vessel Total	0.00E+00	lb/hr	0.00E+00	tpy
Spill Storage Tanker																	
0 Main Engine 1	4.72 hr/yr	1031.2 gal/hr	19460 bhp	1.21E-05	lb/MMBtu fuel input	VCAPCD	1.65E-03	lb/hr	3.89E-06	tpy	none						
0 Generator 1	29 hr/yr	42.6 gal/hr	600 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	6.82E-05	lb/hr	9.89E-07	tpy	none						
0 Generator 2	29 hr/yr	42.6 gal/hr	600 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	6.82E-05	lb/hr	9.89E-07	tpy	none						
0 Generator 3	0 hr/yr	0.0 gal/hr	0 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	none						
0 Emergency Generator	0 hr/yr	0.0 gal/hr	0 kW	1.21E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	none						
0 Boiler 1	52.72 hr/yr	4900.0 kg/hr	212 MMBtu/hr*	4.00E+00	lb/10^12 Btu	AP-42 1.3-10	8.46E-04	lb/hr	2.23E-05	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	6.35E-04	lb/hr	1.67E-05	tpy
0 Boiler 2	0 hr/yr	0.0 kg/hr	0 MMBtu/hr*	4.00E+00	lb/10^12 Btu	AP-42 1.3-10	0.00E+00	lb/hr	0.00E+00	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	0.00E+00	lb/hr	0.00E+00	tpy
						Vessel Total	2.63E-03	lb/hr	2.82E-05	tpy			Vessel Total	6.35E-04	lb/hr	1.67E-05	tpy
All Vessels Fuel Tanks																	
0 Fuel Tank	2400 hr/yr	2880158 gal/yr*	N A	none							none						
						Vessel Total	0	lb/hr	0	tpy			Vessel Total	0	lb/hr	0	tpy
						Total Option 1			3.20E-03	tpy			Total Option 1			5.69E-05	tpy
						Total Option 2			3.22E-03	tpy			Total Option 2			5.69E-05	tpy

Devil's Paw Prospect - Annual Emissions Inventory - HAPs

					Cadmium Compounds							Chromium Compounds						
Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Offshore Supply Vessels (OSV1 & OSV2)																		
0 Main Engine 1	378 hr/yr	74.5 gal/hr	-- --		1.14E-05	lb/MMBtu fuel input	VCAPCD	1.12E-04	lb/hr	2.11E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.22E-05	lb/hr	9.86E-06	tpy
0 Main Engine 1	133 hr/yr	67.0 gal/hr	-- --		1.14E-05	lb/MMBtu fuel input	VCAPCD	1.01E-04	lb/hr	6.68E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.69E-05	lb/hr	3.12E-06	tpy
0 Main Engine 2	378 hr/yr	74.5 gal/hr	-- --		1.14E-05	lb/MMBtu fuel input	VCAPCD	1.12E-04	lb/hr	2.11E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.22E-05	lb/hr	9.86E-06	tpy
0 Main Engine 2	133 hr/yr	67.0 gal/hr	-- --		1.14E-05	lb/MMBtu fuel input	VCAPCD	1.01E-04	lb/hr	6.68E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.69E-05	lb/hr	3.12E-06	tpy
0 Thruster Engine 1	756 hr/yr	45.0 gal/hr	950 bhp		1.14E-05	lb/MMBtu fuel input	VCAPCD	6.75E-05	lb/hr	2.55E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	3.15E-05	lb/hr	1.19E-05	tpy
0 Thruster Engine 2	756 hr/yr	45.0 gal/hr	950 bhp		1.14E-05	lb/MMBtu fuel input	VCAPCD	6.75E-05	lb/hr	2.55E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	3.15E-05	lb/hr	1.19E-05	tpy
0 Thruster Engine 3	756 hr/yr	45.0 gal/hr	950 bhp		1.14E-05	lb/MMBtu fuel input	VCAPCD	6.75E-05	lb/hr	2.55E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	3.15E-05	lb/hr	1.19E-05	tpy
0 Generator	633.5 hr/yr	27.0 gal/hr	400 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	4.05E-05	lb/hr	1.28E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.89E-05	lb/hr	5.99E-06	tpy
0 Generator	633.5 hr/yr	27.0 gal/hr	400 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	4.05E-05	lb/hr	1.28E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.89E-05	lb/hr	5.99E-06	tpy
0 Generator	0 hr/yr	27.0 gal/hr	-- --		1.14E-05	lb/MMBtu fuel input	VCAPCD	4.05E-05	lb/hr	0.00E+00	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.89E-05	lb/hr	0.00E+00	tpy
0 Emergency Generator	8 hr/yr	8.0 gal/hr	99 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	1.20E-05	lb/hr	4.80E-08	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.60E-06	lb/hr	2.24E-08	tpy
							Vessel Total	7.61E-04	lb/hr	1.58E-04	tpy			Vessel Total	3.55E-04	lb/hr	7.37E-05	tpy
Ware Vessel (WV) w/ OSV/AHTS backup																		
0 Main Engine 1	360 hr/yr	87.0 gal/hr	-- hp		1.14E-05	lb/MMBtu fuel input	VCAPCD	1.31E-04	lb/hr	2.35E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	6.09E-05	lb/hr	1.10E-05	tpy
0 Main Engine 2	360 hr/yr	87.0 gal/hr	-- hp		1.14E-05	lb/MMBtu fuel input	VCAPCD	1.31E-04	lb/hr	2.35E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	6.09E-05	lb/hr	1.10E-05	tpy
0 Main Engine 3	820 hr/yr	81.0 gal/hr	-- hp		1.14E-05	lb/MMBtu fuel input	VCAPCD	1.22E-04	lb/hr	4.98E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.67E-05	lb/hr	2.32E-05	tpy
0 Main Engine 4	820 hr/yr	81.0 gal/hr	-- hp		1.14E-05	lb/MMBtu fuel input	VCAPCD	1.22E-04	lb/hr	4.98E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	5.67E-05	lb/hr	2.32E-05	tpy
0 Generator 1	590 hr/yr	32.0 gal/hr	504 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	4.80E-05	lb/hr	1.42E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.24E-05	lb/hr	6.61E-06	tpy
0 Generator 2	590 hr/yr	32.0 gal/hr	504 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	4.80E-05	lb/hr	1.42E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.24E-05	lb/hr	6.61E-06	tpy
0 Generator 3	0 hr/yr	32.0 gal/hr	504 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	4.80E-05	lb/hr	0.00E+00	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.24E-05	lb/hr	0.00E+00	tpy
0 Emergency Generator	8 hr/yr	12.8 gal/hr	170 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	1.92E-05	lb/hr	7.68E-08	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	8.96E-06	lb/hr	3.58E-08	tpy
							Vessel Total	6.67E-04	lb/hr	1.75E-04	tpy			Vessel Total	3.11E-04	lb/hr	8.17E-05	tpy
34' boom work boats - 4																		
0 WB-1 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp		1.14E-05	lb/MMBtu fuel input	VCAPCD	2.27E-05	lb/hr	5.44E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.06E-05	lb/hr	2.54E-07	tpy
0 WB-1 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp		1.14E-05	lb/MMBtu fuel input	VCAPCD	2.27E-05	lb/hr	5.44E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.06E-05	lb/hr	2.54E-07	tpy
0 WB-2 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp		1.14E-05	lb/MMBtu fuel input	VCAPCD	2.27E-05	lb/hr	5.44E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.06E-05	lb/hr	2.54E-07	tpy
0 WB-2 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp		1.14E-05	lb/MMBtu fuel input	VCAPCD	2.27E-05	lb/hr	5.44E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.06E-05	lb/hr	2.54E-07	tpy
0 WB-3 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp		1.14E-05	lb/MMBtu fuel input	VCAPCD	2.27E-05	lb/hr	5.44E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.06E-05	lb/hr	2.54E-07	tpy
0 WB-3 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp		1.14E-05	lb/MMBtu fuel input	VCAPCD	2.27E-05	lb/hr	5.44E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.06E-05	lb/hr	2.54E-07	tpy
0 WB-4 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp		1.14E-05	lb/MMBtu fuel input	VCAPCD	2.27E-05	lb/hr	5.44E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.06E-05	lb/hr	2.54E-07	tpy
0 WB-4 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp		1.14E-05	lb/MMBtu fuel input	VCAPCD	2.27E-05	lb/hr	5.44E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.06E-05	lb/hr	2.54E-07	tpy
							Vessel Total	1.81E-04	lb/hr	4.35E-06	tpy			Vessel Total	8.46E-05	lb/hr	2.03E-06	tpy
Marine Research Vessel																		
0 Main Engine	600 hr/yr	45.0 gal/hr	850 hp		1.14E-05	lb/MMBtu fuel input	VCAPCD	6.76E-05	lb/hr	2.03E-05	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	3.15E-05	lb/hr	9.46E-06	tpy
0 Generator 1	600 hr/yr	9.6 gal/hr	135 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	1.44E-05	lb/hr	4.32E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	6.71E-06	lb/hr	2.01E-06	tpy
0 Generator 2	600 hr/yr	6.4 gal/hr	90 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	9.59E-06	lb/hr	2.88E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	4.48E-06	lb/hr	1.34E-06	tpy
0 Generator 3	600 hr/yr	2.8 gal/hr	40 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	4.26E-06	lb/hr	1.28E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	1.99E-06	lb/hr	5.97E-07	tpy
							Vessel Total	9.58E-05	lb/hr	2.87E-05	tpy			Vessel Total	4.47E-05	lb/hr	1.34E-05	tpy
Spill Storage Tanker																		
0 Main Engine 1	4.72 hr/yr	1031.2 gal/hr	19460 bhp		1.14E-05	lb/MMBtu fuel input	VCAPCD	1.55E-03	lb/hr	3.65E-06	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	7.22E-04	lb/hr	1.70E-06	tpy
0 Generator 1	29 hr/yr	42.6 gal/hr	600 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	6.39E-05	lb/hr	9.27E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.98E-05	lb/hr	4.33E-07	tpy
0 Generator 2	29 hr/yr	42.6 gal/hr	600 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	6.39E-05	lb/hr	9.27E-07	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	2.98E-05	lb/hr	4.33E-07	tpy
0 Generator 3	0 hr/yr	0.0 gal/hr	0 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
0 Emergency Generator	0 hr/yr	0.0 gal/hr	0 kW		1.14E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	5.30E-06	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
0 Boiler 1	52.72 hr/yr	4900.0 kg/hr	212 MMBtu/hr*		3.00E+00	lb/10^12 Btu	AP-42 1.3-10	6.35E-04	lb/hr	1.67E-05	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	6.35E-04	lb/hr	1.67E-05	tpy
0 Boiler 2	0 hr/yr	0.0 kg/hr	0 MMBtu/hr*		3.00E+00	lb/10^12 Btu	AP-42 1.3-10	0.00E+00	lb/hr	0.00E+00	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	0.00E+00	lb/hr	0.00E+00	tpy
							Vessel Total	2.31E-03	lb/hr	2.22E-05	tpy			Vessel Total	1.42E-03	lb/hr	1.93E-05	tpy
All Vessels Fuel Tanks																		
0 Fuel Tank	2400 hr/yr	2880158 gal/yr*	N A		none							none						
							Vessel Total	0	lb/hr	0	tpy			Vessel Total	0	lb/hr	0	tpy
							Total Option 1			3.61E-03	tpy			Total Option 1			1.25E-02	tpy
							Total Option 2			3.63E-03	tpy			Total Option 2			1.26E-02	tpy

Devil's Paw Prospect - Annual Emissions Inventory - HAPs

					Lead Compounds							Manganese Compounds						
Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Offshore Supply Vessels (OSV1 & OSV2)																		
0 Main Engine 1	378 hr/yr	74.5 gal/hr	-- --		6.28E-05	lb/MMBtu fuel input	VCAPCD	6.18E-04	lb/hr	1.17E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.31E-04	lb/hr	4.36E-05	tpy
0 Main Engine 1	133 hr/yr	67.0 gal/hr	-- --		6.28E-05	lb/MMBtu fuel input	VCAPCD	5.56E-04	lb/hr	3.70E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.08E-04	lb/hr	1.38E-05	tpy
0 Main Engine 2	378 hr/yr	74.5 gal/hr	-- --		6.28E-05	lb/MMBtu fuel input	VCAPCD	6.18E-04	lb/hr	1.17E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.31E-04	lb/hr	4.36E-05	tpy
0 Main Engine 2	133 hr/yr	67.0 gal/hr	-- --		6.28E-05	lb/MMBtu fuel input	VCAPCD	5.56E-04	lb/hr	3.70E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.08E-04	lb/hr	1.38E-05	tpy
0 Thruster Engine 1	756 hr/yr	45.0 gal/hr	950 bhp		6.28E-05	lb/MMBtu fuel input	VCAPCD	3.74E-04	lb/hr	1.41E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.40E-04	lb/hr	5.27E-05	tpy
0 Thruster Engine 2	756 hr/yr	45.0 gal/hr	950 bhp		6.28E-05	lb/MMBtu fuel input	VCAPCD	3.74E-04	lb/hr	1.41E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.40E-04	lb/hr	5.27E-05	tpy
0 Thruster Engine 3	756 hr/yr	45.0 gal/hr	950 bhp		6.28E-05	lb/MMBtu fuel input	VCAPCD	3.74E-04	lb/hr	1.41E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.40E-04	lb/hr	5.27E-05	tpy
0 Generator	633.5 hr/yr	27.0 gal/hr	400 kW		6.28E-05	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	7.10E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.37E-05	lb/hr	2.65E-05	tpy
0 Generator	633.5 hr/yr	27.0 gal/hr	400 kW		6.28E-05	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	7.10E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.37E-05	lb/hr	2.65E-05	tpy
0 Generator	0 hr/yr	27.0 gal/hr	-- --		6.28E-05	lb/MMBtu fuel input	VCAPCD	2.24E-04	lb/hr	0.00E+00	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.37E-05	lb/hr	0.00E+00	tpy
0 Emergency Generator	8 hr/yr	8.0 gal/hr	99 kW		6.28E-05	lb/MMBtu fuel input	VCAPCD	6.64E-05	lb/hr	2.66E-07	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.48E-05	lb/hr	9.92E-08	tpy
							Vessel Total	4.21E-03	lb/hr	8.73E-04	tpy			Vessel Total	1.57E-03	lb/hr	3.26E-04	tpy
Ware Vessel (WV) w/ OSV/AHTS backup																		
0 Main Engine 1	360 hr/yr	87.0 gal/hr	-- hp		6.28E-05	lb/MMBtu fuel input	VCAPCD	7.22E-04	lb/hr	1.30E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.70E-04	lb/hr	4.85E-05	tpy
0 Main Engine 2	360 hr/yr	87.0 gal/hr	-- hp		6.28E-05	lb/MMBtu fuel input	VCAPCD	7.22E-04	lb/hr	1.30E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.70E-04	lb/hr	4.85E-05	tpy
0 Main Engine 3	820 hr/yr	81.0 gal/hr	-- hp		6.28E-05	lb/MMBtu fuel input	VCAPCD	6.72E-04	lb/hr	2.76E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.51E-04	lb/hr	1.03E-04	tpy
0 Main Engine 4	820 hr/yr	81.0 gal/hr	-- hp		6.28E-05	lb/MMBtu fuel input	VCAPCD	6.72E-04	lb/hr	2.76E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.51E-04	lb/hr	1.03E-04	tpy
0 Generator 1	590 hr/yr	32.0 gal/hr	504 kW		6.28E-05	lb/MMBtu fuel input	VCAPCD	2.66E-04	lb/hr	7.84E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.92E-05	lb/hr	2.93E-05	tpy
0 Generator 2	590 hr/yr	32.0 gal/hr	504 kW		6.28E-05	lb/MMBtu fuel input	VCAPCD	2.66E-04	lb/hr	7.84E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.92E-05	lb/hr	2.93E-05	tpy
0 Generator 3	0 hr/yr	32.0 gal/hr	504 kW		6.28E-05	lb/MMBtu fuel input	VCAPCD	2.66E-04	lb/hr	0.00E+00	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	9.92E-05	lb/hr	0.00E+00	tpy
0 Emergency Generator	8 hr/yr	12.8 gal/hr	170 kW		6.28E-05	lb/MMBtu fuel input	VCAPCD	1.06E-04	lb/hr	4.25E-07	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	3.97E-05	lb/hr	1.59E-07	tpy
							Vessel Total	3.69E-03	lb/hr	9.68E-04	tpy			Vessel Total	1.38E-03	lb/hr	3.62E-04	tpy
34' boom work boats - 4																		
0 WB-1 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp		6.28E-05	lb/MMBtu fuel input	VCAPCD	1.25E-04	lb/hr	3.01E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	4.68E-05	lb/hr	1.12E-06	tpy
0 WB-1 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp		6.28E-05	lb/MMBtu fuel input	VCAPCD	1.25E-04	lb/hr	3.01E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	4.68E-05	lb/hr	1.12E-06	tpy
0 WB-2 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp		6.28E-05	lb/MMBtu fuel input	VCAPCD	1.25E-04	lb/hr	3.01E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	4.68E-05	lb/hr	1.12E-06	tpy
0 WB-2 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp		6.28E-05	lb/MMBtu fuel input	VCAPCD	1.25E-04	lb/hr	3.01E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	4.68E-05	lb/hr	1.12E-06	tpy
0 WB-3 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp		6.28E-05	lb/MMBtu fuel input	VCAPCD	1.25E-04	lb/hr	3.01E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	4.68E-05	lb/hr	1.12E-06	tpy
0 WB-3 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp		6.28E-05	lb/MMBtu fuel input	VCAPCD	1.25E-04	lb/hr	3.01E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	4.68E-05	lb/hr	1.12E-06	tpy
0 WB-4 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp		6.28E-05	lb/MMBtu fuel input	VCAPCD	1.25E-04	lb/hr	3.01E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	4.68E-05	lb/hr	1.12E-06	tpy
0 WB-4 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp		6.28E-05	lb/MMBtu fuel input	VCAPCD	1.25E-04	lb/hr	3.01E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	4.68E-05	lb/hr	1.12E-06	tpy
							Vessel Total	1.00E-03	lb/hr	2.41E-05	tpy			Vessel Total	3.74E-04	lb/hr	8.99E-06	tpy
Marine Research Vessel																		
0 Main Engine	600 hr/yr	45.0 gal/hr	850 hp		6.28E-05	lb/MMBtu fuel input	VCAPCD	3.74E-04	lb/hr	1.12E-04	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.40E-04	lb/hr	4.19E-05	tpy
0 Generator 1	600 hr/yr	9.6 gal/hr	135 kW		6.28E-05	lb/MMBtu fuel input	VCAPCD	7.96E-05	lb/hr	2.39E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	2.97E-05	lb/hr	8.92E-06	tpy
0 Generator 2	600 hr/yr	6.4 gal/hr	90 kW		6.28E-05	lb/MMBtu fuel input	VCAPCD	5.31E-05	lb/hr	1.59E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.98E-05	lb/hr	5.95E-06	tpy
0 Generator 3	600 hr/yr	2.8 gal/hr	40 kW		6.28E-05	lb/MMBtu fuel input	VCAPCD	2.36E-05	lb/hr	7.08E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	8.81E-06	lb/hr	2.64E-06	tpy
							Vessel Total	5.30E-04	lb/hr	1.59E-04	tpy			Vessel Total	1.98E-04	lb/hr	5.94E-05	tpy
Spill Storage Tanker																		
0 Main Engine 1	4.72 hr/yr	1031.2 gal/hr	19460 bhp		6.28E-05	lb/MMBtu fuel input	VCAPCD	8.56E-03	lb/hr	2.02E-05	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	3.20E-03	lb/hr	7.54E-06	tpy
0 Generator 1	29 hr/yr	42.6 gal/hr	600 kW		6.28E-05	lb/MMBtu fuel input	VCAPCD	3.54E-04	lb/hr	5.13E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.32E-04	lb/hr	1.92E-06	tpy
0 Generator 2	29 hr/yr	42.6 gal/hr	600 kW		6.28E-05	lb/MMBtu fuel input	VCAPCD	3.54E-04	lb/hr	5.13E-06	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	1.32E-04	lb/hr	1.92E-06	tpy
0 Generator 3	0 hr/yr	0.0 gal/hr	0 kW		6.28E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
0 Emergency Generator	0 hr/yr	0.0 gal/hr	0 kW		6.28E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	2.35E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
0 Boiler 1	52.72 hr/yr	4900.0 kg/hr	212 MMBtu/hr*		9.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.90E-03	lb/hr	5.02E-05	tpy	6.00E+00	lb/10^12 Btu	AP-42 1.3-10	1.27E-03	lb/hr	3.35E-05	tpy
0 Boiler 2	0 hr/yr	0.0 kg/hr	0 MMBtu/hr*		9.00E+00	lb/10^12 Btu	AP-42 1.3-10	0.00E+00	lb/hr	0.00E+00	tpy	6.00E+00	lb/10^12 Btu	AP-42 1.3-10	0.00E+00	lb/hr	0.00E+00	tpy
							Vessel Total	1.12E-02	lb/hr	8.06E-05	tpy			Vessel Total	4.73E-03	lb/hr	4.48E-05	tpy
All Vessels Fuel Tanks																		
0 Fuel Tank	2400 hr/yr	2880158 gal/yr*	N A		none							none						
							Vessel Total	0	lb/hr	0	tpy			Vessel Total	0	lb/hr	0	tpy
							Total Option 1			2.82E-01	tpy			Total Option 1			5.40E-03	tpy
							Total Option 2			2.83E-01	tpy			Total Option 2			5.43E-03	tpy

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					Mercury Compounds							Nickel Compounds						
Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output		Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE	Unit	PTE	Unit
Offshore Supply Vessels (OSV1 & OSV2)																		
0 Main Engine 1	378 hr/yr	74.5 gal/hr	-- --		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.49E-04	lb/hr	2.82E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.91E-04	lb/hr	5.49E-05	tpy
0 Main Engine 1	133 hr/yr	67.0 gal/hr	-- --		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.34E-04	lb/hr	8.91E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.61E-04	lb/hr	1.74E-05	tpy
0 Main Engine 2	378 hr/yr	74.5 gal/hr	-- --		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.49E-04	lb/hr	2.82E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.91E-04	lb/hr	5.49E-05	tpy
0 Main Engine 2	133 hr/yr	67.0 gal/hr	-- --		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.34E-04	lb/hr	8.91E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.61E-04	lb/hr	1.74E-05	tpy
0 Thruster Engine 1	756 hr/yr	45.0 gal/hr	950 bhp		1.51E-05	lb/MMBtu fuel input	VCAPCD	9.00E-05	lb/hr	3.40E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.76E-04	lb/hr	6.63E-05	tpy
0 Thruster Engine 2	756 hr/yr	45.0 gal/hr	950 bhp		1.51E-05	lb/MMBtu fuel input	VCAPCD	9.00E-05	lb/hr	3.40E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.76E-04	lb/hr	6.63E-05	tpy
0 Thruster Engine 3	756 hr/yr	45.0 gal/hr	950 bhp		1.51E-05	lb/MMBtu fuel input	VCAPCD	9.00E-05	lb/hr	3.40E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.76E-04	lb/hr	6.63E-05	tpy
0 Generator	633.5 hr/yr	27.0 gal/hr	400 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	5.40E-05	lb/hr	1.71E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.05E-04	lb/hr	3.34E-05	tpy
0 Generator	633.5 hr/yr	27.0 gal/hr	400 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	5.40E-05	lb/hr	1.71E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.05E-04	lb/hr	3.34E-05	tpy
0 Generator	0 hr/yr	27.0 gal/hr	-- --		1.51E-05	lb/MMBtu fuel input	VCAPCD	5.40E-05	lb/hr	0.00E+00	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.05E-04	lb/hr	0.00E+00	tpy
0 Emergency Generator	8 hr/yr	8.0 gal/hr	99 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.60E-05	lb/hr	6.40E-08	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.12E-05	lb/hr	1.25E-07	tpy
							Vessel Total	1.01E-03	lb/hr	2.10E-04	tpy			Vessel Total	1.98E-03	lb/hr	4.10E-04	tpy
Ware Vessel (WV) w/ OSV/AHTS backup																		
0 Main Engine 1	360 hr/yr	87.0 gal/hr	-- hp		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.74E-04	lb/hr	3.13E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.39E-04	lb/hr	6.11E-05	tpy
0 Main Engine 2	360 hr/yr	87.0 gal/hr	-- hp		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.74E-04	lb/hr	3.13E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.39E-04	lb/hr	6.11E-05	tpy
0 Main Engine 3	820 hr/yr	81.0 gal/hr	-- hp		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.62E-04	lb/hr	6.64E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.16E-04	lb/hr	1.30E-04	tpy
0 Main Engine 4	820 hr/yr	81.0 gal/hr	-- hp		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.62E-04	lb/hr	6.64E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.16E-04	lb/hr	1.30E-04	tpy
0 Generator 1	590 hr/yr	32.0 gal/hr	504 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	6.40E-05	lb/hr	1.89E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.25E-04	lb/hr	3.68E-05	tpy
0 Generator 2	590 hr/yr	32.0 gal/hr	504 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	6.40E-05	lb/hr	1.89E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.25E-04	lb/hr	3.68E-05	tpy
0 Generator 3	0 hr/yr	32.0 gal/hr	504 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	6.40E-05	lb/hr	0.00E+00	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.25E-04	lb/hr	0.00E+00	tpy
0 Emergency Generator	8 hr/yr	12.8 gal/hr	170 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	2.56E-05	lb/hr	1.02E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	4.99E-05	lb/hr	2.00E-07	tpy
							Vessel Total	8.90E-04	lb/hr	2.33E-04	tpy			Vessel Total	1.73E-03	lb/hr	4.55E-04	tpy
34' boom work boats - 4																		
0 WB-1 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp		1.51E-05	lb/MMBtu fuel input	VCAPCD	3.02E-05	lb/hr	7.25E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	5.89E-05	lb/hr	1.41E-06	tpy
0 WB-1 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp		1.51E-05	lb/MMBtu fuel input	VCAPCD	3.02E-05	lb/hr	7.25E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	5.89E-05	lb/hr	1.41E-06	tpy
0 WB-2 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp		1.51E-05	lb/MMBtu fuel input	VCAPCD	3.02E-05	lb/hr	7.25E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	5.89E-05	lb/hr	1.41E-06	tpy
0 WB-2 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp		1.51E-05	lb/MMBtu fuel input	VCAPCD	3.02E-05	lb/hr	7.25E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	5.89E-05	lb/hr	1.41E-06	tpy
0 WB-3 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp		1.51E-05	lb/MMBtu fuel input	VCAPCD	3.02E-05	lb/hr	7.25E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	5.89E-05	lb/hr	1.41E-06	tpy
0 WB-3 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp		1.51E-05	lb/MMBtu fuel input	VCAPCD	3.02E-05	lb/hr	7.25E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	5.89E-05	lb/hr	1.41E-06	tpy
0 WB-4 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp		1.51E-05	lb/MMBtu fuel input	VCAPCD	3.02E-05	lb/hr	7.25E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	5.89E-05	lb/hr	1.41E-06	tpy
0 WB-4 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp		1.51E-05	lb/MMBtu fuel input	VCAPCD	3.02E-05	lb/hr	7.25E-07	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	5.89E-05	lb/hr	1.41E-06	tpy
							Vessel Total	2.42E-04	lb/hr	5.80E-06	tpy			Vessel Total	4.71E-04	lb/hr	1.13E-05	tpy
Marine Research Vessel																		
0 Main Engine	600 hr/yr	45.0 gal/hr	850 hp		1.51E-05	lb/MMBtu fuel input	VCAPCD	9.01E-05	lb/hr	2.70E-05	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.76E-04	lb/hr	5.27E-05	tpy
0 Generator 1	600 hr/yr	9.6 gal/hr	135 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.92E-05	lb/hr	5.75E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	3.74E-05	lb/hr	1.12E-05	tpy
0 Generator 2	600 hr/yr	6.4 gal/hr	90 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	1.28E-05	lb/hr	3.84E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	2.49E-05	lb/hr	7.48E-06	tpy
0 Generator 3	600 hr/yr	2.8 gal/hr	40 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	5.68E-06	lb/hr	1.70E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.11E-05	lb/hr	3.32E-06	tpy
							Vessel Total	1.28E-04	lb/hr	3.83E-05	tpy			Vessel Total	2.49E-04	lb/hr	7.47E-05	tpy
Spill Storage Tanker																		
0 Main Engine 1	4.72 hr/yr	1031.2 gal/hr	19460 bhp		1.51E-05	lb/MMBtu fuel input	VCAPCD	2.06E-03	lb/hr	4.87E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	4.02E-03	lb/hr	9.49E-06	tpy
0 Generator 1	29 hr/yr	42.6 gal/hr	600 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	8.52E-05	lb/hr	1.24E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.66E-04	lb/hr	2.41E-06	tpy
0 Generator 2	29 hr/yr	42.6 gal/hr	600 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	8.52E-05	lb/hr	1.24E-06	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	1.66E-04	lb/hr	2.41E-06	tpy
0 Generator 3	0 hr/yr	0.0 gal/hr	0 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
0 Emergency Generator	0 hr/yr	0.0 gal/hr	0 kW		1.51E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy	2.95E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00	lb/hr	0.00E+00	tpy
0 Boiler 1	52.72 hr/yr	4900.0 kg/hr	212 MMBtu/hr*		3.00E+00	lb/10^12 Btu	AP-42 1.3-10	6.35E-04	lb/hr	1.67E-05	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	6.35E-04	lb/hr	1.67E-05	tpy
0 Boiler 2	0 hr/yr	0.0 kg/hr	0 MMBtu/hr*		3.00E+00	lb/10^12 Btu	AP-42 1.3-10	0.00E+00	lb/hr	0.00E+00	tpy	3.00E+00	lb/10^12 Btu	AP-42 1.3-10	0.00E+00	lb/hr	0.00E+00	tpy
							Vessel Total	2.87E-03	lb/hr	2.41E-05	tpy			Vessel Total	4.99E-03	lb/hr	3.10E-05	tpy
All Vessels Fuel Tanks																		
0 Fuel Tank	2400 hr/yr	2880158 gal/yr*	N A		none							none						
							Vessel Total	0	lb/hr	0	tpy			Vessel Total	0	lb/hr	0	tpy
							Total Option 1			6.65E-01	tpy			Total Option 1			1.66E-02	tpy
							Total Option 2			6.65E-01	tpy			Total Option 2			1.66E-02	tpy

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Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Polycyclic Organic Matter (See notes 13 & 14)						Selenium Compounds					
				Emission Factor	Unit	Reference	PTE Unit	PTE	Unit	Emission Factor	Unit	Reference	PTE Unit	PTE	Unit
Offshore Supply Vessels (OSV1 & OSV2)															
Main Engine 1	378 hr/yr	74.5 gal/hr	-- --	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.08E-03 lb/hr	3.93E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.64E-04 lb/hr	3.10E-05	tpy
Main Engine 1	133 hr/yr	67.0 gal/hr	-- --	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.87E-03 lb/hr	1.24E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.47E-04 lb/hr	9.80E-06	tpy
Main Engine 2	378 hr/yr	74.5 gal/hr	-- --	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.08E-03 lb/hr	3.93E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.64E-04 lb/hr	3.10E-05	tpy
Main Engine 2	133 hr/yr	67.0 gal/hr	-- --	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.87E-03 lb/hr	1.24E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.47E-04 lb/hr	9.80E-06	tpy
Thruster Engine 1	756 hr/yr	45.0 gal/hr	950 bhp	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.26E-03 lb/hr	4.75E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	9.90E-05 lb/hr	3.74E-05	tpy
Thruster Engine 2	756 hr/yr	45.0 gal/hr	950 bhp	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.26E-03 lb/hr	4.75E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	9.90E-05 lb/hr	3.74E-05	tpy
Thruster Engine 3	756 hr/yr	45.0 gal/hr	950 bhp	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-5	1.26E-03 lb/hr	4.75E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	9.90E-05 lb/hr	3.74E-05	tpy
Generator	633.5 hr/yr	27.0 gal/hr	400 kW	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.99E-04 lb/hr	1.90E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.94E-05 lb/hr	1.88E-05	tpy
Generator	633.5 hr/yr	27.0 gal/hr	400 kW	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.99E-04 lb/hr	1.90E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.94E-05 lb/hr	1.88E-05	tpy
Generator	0 hr/yr	27.0 gal/hr	-- --	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	5.99E-04 lb/hr	0.00E+00	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	5.94E-05 lb/hr	0.00E+00	tpy
Emergency Generator	8 hr/yr	8.0 gal/hr	99 kW	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.78E-04 lb/hr	7.10E-07	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.76E-05 lb/hr	7.04E-08	tpy
						Vessel Total	1.37E-02 lb/hr	2.84E-03	tpy			Vessel Total	1.12E-03 lb/hr	2.32E-04	tpy
Ware Vessel (WV) w/ OSV/AHTS backup															
Main Engine 1	360 hr/yr	87.0 gal/hr	-- hp	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.43E-03 lb/hr	4.38E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.91E-04 lb/hr	3.45E-05	tpy
Main Engine 2	360 hr/yr	87.0 gal/hr	-- hp	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.43E-03 lb/hr	4.38E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.91E-04 lb/hr	3.45E-05	tpy
Main Engine 3	820 hr/yr	81.0 gal/hr	-- hp	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.26E-03 lb/hr	9.28E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.78E-04 lb/hr	7.31E-05	tpy
Main Engine 4	820 hr/yr	81.0 gal/hr	-- hp	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.26E-03 lb/hr	9.28E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.78E-04 lb/hr	7.31E-05	tpy
Generator 1	590 hr/yr	32.0 gal/hr	504 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.94E-04 lb/hr	2.64E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	7.04E-05 lb/hr	2.08E-05	tpy
Generator 2	590 hr/yr	32.0 gal/hr	504 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.94E-04 lb/hr	2.64E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	7.04E-05 lb/hr	2.08E-05	tpy
Generator 3	0 hr/yr	32.0 gal/hr	504 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	8.94E-04 lb/hr	0.00E+00	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	7.04E-05 lb/hr	0.00E+00	tpy
Emergency Generator	8 hr/yr	12.8 gal/hr	170 kW	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.84E-04 lb/hr	1.14E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	2.82E-05 lb/hr	1.13E-07	tpy
						Vessel Total	1.24E-02 lb/hr	3.26E-03	tpy			Vessel Total	9.79E-04 lb/hr	2.57E-04	tpy
34' boom work boats - 4															
WB-1 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.35E-04 lb/hr	8.05E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.32E-05 lb/hr	7.97E-07	tpy
WB-1 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.35E-04 lb/hr	8.05E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.32E-05 lb/hr	7.97E-07	tpy
WB-2 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.35E-04 lb/hr	8.05E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.32E-05 lb/hr	7.97E-07	tpy
WB-2 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.35E-04 lb/hr	8.05E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.32E-05 lb/hr	7.97E-07	tpy
WB-3 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.35E-04 lb/hr	8.05E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.32E-05 lb/hr	7.97E-07	tpy
WB-3 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.35E-04 lb/hr	8.05E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.32E-05 lb/hr	7.97E-07	tpy
WB-4 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.35E-04 lb/hr	8.05E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.32E-05 lb/hr	7.97E-07	tpy
WB-4 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	3.35E-04 lb/hr	8.05E-06	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	3.32E-05 lb/hr	7.97E-07	tpy
						Vessel Total	2.68E-03 lb/hr	6.44E-05	tpy			Vessel Total	2.66E-04 lb/hr	6.38E-06	tpy
Marine Research Vessel															
Main Engine	600 hr/yr	45.0 gal/hr	850 hp	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.26E-03 lb/hr	3.78E-04	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	9.91E-05 lb/hr	2.97E-05	tpy
Generator 1	600 hr/yr	9.6 gal/hr	135 kW	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	2.13E-04 lb/hr	6.39E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	2.11E-05 lb/hr	6.33E-06	tpy
Generator 2	600 hr/yr	6.4 gal/hr	90 kW	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	1.42E-04 lb/hr	4.26E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	1.41E-05 lb/hr	4.22E-06	tpy
Generator 3	600 hr/yr	2.8 gal/hr	40 kW	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	6.31E-05 lb/hr	1.89E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	6.25E-06 lb/hr	1.88E-06	tpy
						Vessel Total	1.68E-03 lb/hr	5.03E-04	tpy			Vessel Total	1.41E-04 lb/hr	4.22E-05	tpy
Spill Storage Tanker															
Main Engine 1	4.72 hr/yr	1031.2 gal/hr	19460 bhp	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	2.88E-02 lb/hr	6.80E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	2.27E-03 lb/hr	5.35E-06	tpy
Generator 1	29 hr/yr	42.6 gal/hr	600 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.19E-03 lb/hr	1.73E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	9.38E-05 lb/hr	1.36E-06	tpy
Generator 2	29 hr/yr	42.6 gal/hr	600 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	1.19E-03 lb/hr	1.73E-05	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	9.38E-05 lb/hr	1.36E-06	tpy
Generator 3	0 hr/yr	0.0 gal/hr	0 kW	2.12E-04	lb/MMBtu fuel input	AP-42 3.4-4	0.00E+00 lb/hr	0.00E+00	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00 lb/hr	0.00E+00	tpy
Emergency Generator	0 hr/yr	0.0 gal/hr	0 kW	1.68E-04	lb/MMBtu fuel input	AP-42 3.3-2	0.00E+00 lb/hr	0.00E+00	tpy	1.67E-05	lb/MMBtu fuel input	VCAPCD	0.00E+00 lb/hr	0.00E+00	tpy
Boiler 1	52.72 hr/yr	4900.0 kg/hr	212 MMBtu/hr*	3.68E-01	lbs/Mgal	CARB-CATEF	5.89E-01 lb/hr	1.55E-02	tpy	1.50E+01	lb/10^12 Btu	AP-42 1.3-10	3.17E-03 lb/hr	8.37E-05	tpy
Boiler 2	0 hr/yr	0.0 kg/hr	0 MMBtu/hr*	3.68E-01	lbs/Mgal	CARB-CATEF	0.00E+00 lb/hr	0.00E+00	tpy	1.50E+01	lb/10^12 Btu	AP-42 1.3-10	0.00E+00 lb/hr	0.00E+00	tpy
						Vessel Total	6.20E-01 lb/hr	1.56E-02	tpy			Vessel Total	5.63E-03 lb/hr	9.17E-05	tpy
All Vessels Fuel Tanks															
Fuel Tank	2400 hr/yr	2880158 gal/yr*	N A	N A		EPA TANKS	1.00E-07 lb/hr	2.40E-04	tpy	none					
						Vessel Total	0.0000001 lb/hr	0.00024	tpy			Vessel Total	0 lb/hr	0	tpy
						Total Option 1		1.01E-01	tpy			Total Option 1		4.03E-03	tpy
						Total Option 2		1.01E-01	tpy			Total Option 2		4.06E-03	tpy

Devil's Paw Prospect - Annual Emissions Inventory - HAPs

Emission Unit Description	Allowable Operation	Fuel Consumption	Power Output	Total HAPs	
				Hourly Emission Rate (lb/hr)	Annual Emissions (tons/yr)
Offshore Supply Vessels (OSV1 & OSV2)					
Main Engine 1	378 hr/yr	74.5 gal/hr	-- --	5.53E-02	1.04E-02
Main Engine 1	133 hr/yr	67.0 gal/hr	-- --	4.97E-02	3.30E-03
Main Engine 2	378 hr/yr	74.5 gal/hr	-- --	5.53E-02	1.04E-02
Main Engine 2	133 hr/yr	67.0 gal/hr	-- --	4.97E-02	3.30E-03
Thruster Engine 1	756 hr/yr	45.0 gal/hr	950 bhp	3.34E-02	1.26E-02
Thruster Engine 2	756 hr/yr	45.0 gal/hr	950 bhp	3.34E-02	1.26E-02
Thruster Engine 3	756 hr/yr	45.0 gal/hr	950 bhp	3.34E-02	1.26E-02
Generator	633.5 hr/yr	27.0 gal/hr	400 kW	2.20E-02	6.95E-03
Generator	633.5 hr/yr	27.0 gal/hr	400 kW	2.20E-02	6.95E-03
Generator	0 hr/yr	27.0 gal/hr	-- --	2.20E-02	0.00E+00
Emergency Generator	8 hr/yr	8.0 gal/hr	99 kW	6.50E-03	2.60E-05
				3.82E-01	7.93E-02
Ware Vessel (WV) w/ OSV/AHTS backup					
Main Engine 1	360 hr/yr	87.0 gal/hr	-- hp	6.45E-02	1.16E-02
Main Engine 2	360 hr/yr	87.0 gal/hr	-- hp	6.45E-02	1.16E-02
Main Engine 3	820 hr/yr	81.0 gal/hr	-- hp	6.01E-02	2.46E-02
Main Engine 4	820 hr/yr	81.0 gal/hr	-- hp	6.01E-02	2.46E-02
Generator 1	590 hr/yr	32.0 gal/hr	504 kW	2.37E-02	7.00E-03
Generator 2	590 hr/yr	32.0 gal/hr	504 kW	2.37E-02	7.00E-03
Generator 3	0 hr/yr	32.0 gal/hr	504 kW	2.37E-02	0.00E+00
Emergency Generator	8 hr/yr	12.8 gal/hr	170 kW	1.04E-02	4.16E-05
				3.31E-01	8.65E-02
34' boom work boats - 4					
WB-1 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	1.23E-02	2.95E-04
WB-1 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	1.23E-02	2.95E-04
WB-2 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	1.23E-02	2.95E-04
WB-2 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	1.23E-02	2.95E-04
WB-3 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	1.23E-02	2.95E-04
WB-3 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	1.23E-02	2.95E-04
WB-4 Propulsion Engine 1	48 hr/yr	15.1 gal/hr	300 hp	1.23E-02	2.95E-04
WB-4 Propulsion Engine 2	48 hr/yr	15.1 gal/hr	300 hp	1.23E-02	2.95E-04
				9.82E-02	2.36E-03
Marine Research Vessel					
Main Engine	600 hr/yr	45.0 gal/hr	850 hp	3.34E-02	1.00E-02
Generator 1	600 hr/yr	9.6 gal/hr	135 kW	7.80E-03	2.34E-03
Generator 2	600 hr/yr	6.4 gal/hr	90 kW	5.20E-03	1.56E-03
Generator 3	600 hr/yr	2.8 gal/hr	40 kW	2.31E-03	6.93E-04
				4.87E-02	1.46E-02
Spill Storage Tanker					
Main Engine 1	4.72 hr/yr	1031.2 gal/hr	19460 bhp	7.65E-01	1.81E-03
Generator 1	29 hr/yr	42.6 gal/hr	600 kW	3.16E-02	4.58E-04
Generator 2	29 hr/yr	42.6 gal/hr	600 kW	3.16E-02	4.58E-04
Generator 3	0 hr/yr	0.0 gal/hr	0 kW	0.00E+00	0.00E+00
Emergency Generator	0 hr/yr	0.0 gal/hr	0 kW	0.00E+00	0.00E+00
Boiler 1	52.72 hr/yr	4900.0 kg/hr	212 MMBtu/hr*	2.65E+00	6.98E-02
Boiler 2	0 hr/yr	0.0 kg/hr	0 MMBtu/hr*	0.00E+00	0.00E+00
				3.47E+00	7.25E-02
All Vessels Fuel Tanks					
Fuel Tank	2400 hr/yr	2880158 gal/yr*	N A	3.54E-07	8.50E-04
				3.54E-07	8.50E-04
				HAP Total Option 1	**3.08**
				HAP Total Option 2	**3.09**

Devil's Paw Prospect - HAPs Proposed Allowable Annual Emissions Inventory - Notes

Emission Source Types

- >600hp internal combustion diesel engine
- <600hp internal combustion diesel engine
- external combustion boiler/heater
- mud degassing
- incinerator
- fuel tank

1 1.3405 hp/kW; 454g/lb; Brake Specific Fuel Consumption of 7000 Btu/hp-hr (AP-42, Table 3.3-1).

2 Ultra Low Sulfur Diesel #1 (ULSD): Fuel Heat Content of 132,096 Btu/gal; Density of 0.8094 kg/L; so 6.74 lbs/gal diesel is assumed (Tesoro/Kenai Refinery).

3 Incinerator Fuel Heat Content (Waste) of 6,203 Btu/lb ("Air Pollution Training Institute, Course 427, Combustion Evaluation, Student Manual", EPA 450/2-80-063, ch. 3. Attachment 3-17). Incinerators will burn ULSD for ignition purposes only.

4 An equivalent of two main drilling engines at 100% load will operate continuously for up to 4800 hours per season. All four main drilling engines will operate at 100% load for up to 48 hours per season.

5 Mud degassing emission rate is based on 400 ft of 12 in hole per 24 hour day, 25% porosity and 4000 psig resevoir pressure (EPA-450/3-77-026) "Atmospheric Emissions From Offshore Oil and Gas Development and Production" pg 89 (June 1977).

6 OSRV cruising time includes laying & remoivng boom for rig fuel transfer activities (up to 6 times per year).

7 Fifth work boat will be used to lay boom (during re-fueling) during spill exercises only if the OSRV is not used.

8 Drill Rig Incinerator Operating Hours (65 tons/season) = (840 ft^3 waste/wk) ÷ (27 ft^3/yd^3) x (14 wks/season) x (300 lbs/yd^3 (EPA factor)) ÷ (2,000 lb/ton).

9 OSV & Ware Vessel assume operation of up to 100 hrs/season for open water idling in the 25 mile zone, if weather delays off-loading.

10 Polycyclic organic matter EF includes naphthalene - naphthalene also accounted for individually.

11 POM EF calculated by adding EFs for individual pollutants based on: Guidance on the Major Source Determination for Certain Hazardous Air Pollutants (EPA-HQ-OAR-2007-0750-0001).

12 See HAP Emisison Factor Basis for EF detail information and example calculations.

13 Tank emissions are derived from EPA's TANKS Emissions Estimation Software, Version 4.09D: http://www.epa.gov/ttnchie1/software/tanks/index.html

14 Drill Rig fuel tank POM emissions are 1,2,4- Trimethylbenzene only.

15 100 Seasonal drilling days.

Devil's Paw Prospect - HAPs Proposed Allowable Annual Emissions Inventory - Option 1 - Ware Barge/Tug and 2 OSV's

Source Description	Potential to Emit (PTE)																	
	Acet-aldehyde		Acrolein		Benzene		1,3-Butadiene		Chloro-benzene		Ethyl-benzene		Form-aldehyde		Hexane		Hydrochloric acid	
	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr
Drill Rig Equipment	1.95E-01	6.61E-02	4.00E-02	2.76E-02	1.71E-01	4.23E-02	9.69E-03	3.16E-03	3.41E-04	9.47E-05	1.81E-02	4.57E-03	2.13E-01	7.00E-02	4.45E-02	1.11E-02	1.20E+00	2.97E-01
Ice Breaker 1	1.87E-01	6.05E-02	3.99E-02	1.32E-02	1.61E-01	5.17E-02	9.29E-03	3.01E-03	3.24E-04	1.05E-04	1.71E-02	5.52E-03	2.02E-01	6.51E-02	4.21E-02	1.36E-02	8.62E-01	2.86E-01
Ice Breaker 2	1.87E-01	6.05E-02	3.99E-02	1.32E-02	1.61E-01	5.17E-02	9.29E-03	3.01E-03	3.24E-04	1.05E-04	1.71E-02	5.52E-03	2.02E-01	6.51E-02	4.21E-02	1.36E-02	8.62E-01	2.86E-01
Anchor Handler Tug Supply Vessel (AHTS)	5.21E-02	1.84E-03	6.33E-03	2.22E-04	5.22E-02	2.21E-03	2.64E-03	9.37E-05	9.84E-05	3.62E-06	5.36E-03	1.97E-04	6.05E-02	2.78E-03	1.32E-02	4.87E-04	9.17E-02	3.37E-03
Oil Spill Response Vessel 1 (Dedicated OSRV)	5.84E-02	1.40E-02	7.09E-03	1.70E-03	5.63E-02	1.34E-02	2.95E-03	7.07E-04	1.09E-04	2.61E-05	5.96E-03	1.42E-03	6.40E-02	1.52E-02	1.47E-02	3.52E-03	1.02E-01	2.43E-02
Oil Spill Response Vessel 2	2.89E-02	6.65E-04	3.51E-03	8.08E-05	2.81E-02	6.39E-04	1.46E-03	3.36E-05	5.41E-05	1.24E-06	2.95E-03	6.78E-05	3.20E-02	7.24E-04	7.28E-03	1.67E-04	5.04E-02	1.16E-03
Offshore Supply Vessels (OSV1 & OSV2)	5.37E-02	1.12E-02	6.52E-03	1.35E-03	5.38E-02	1.11E-02	2.72E-03	5.65E-04	1.01E-04	2.10E-05	5.53E-03	1.15E-03	6.24E-02	1.29E-02	1.36E-02	2.83E-03	9.45E-02	1.96E-02
34' boom work boats - 4	1.22E-02	2.94E-04	1.48E-03	3.54E-05	1.49E-02	3.57E-04	6.24E-04	1.50E-05	2.42E-05	5.80E-07	1.32E-03	3.16E-05	1.88E-02	4.52E-04	3.25E-03	7.80E-05	2.25E-02	5.40E-04
Marine Research Vessel	6.73E-03	2.02E-03	8.16E-04	2.45E-04	6.94E-03	2.08E-03	3.41E-04	1.02E-04	1.28E-05	3.83E-06	6.96E-04	2.09E-04	8.16E-03	2.45E-03	1.72E-03	5.15E-04	1.19E-02	3.57E-03
Spill Storage Tanker	6.81E-01	1.52E-02	5.76E-01	1.48E-02	1.19E-01	4.83E-04	2.97E-02	6.45E-04	5.44E-04	9.18E-06	1.46E-02	1.03E-04	1.30E-01	4.40E-04	3.20E-02	1.50E-04	5.06E-01	8.55E-03
All Vessels Fuel Tanks	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.33E-09	2.00E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.33E-09	2.00E-05	0.00E+00	0.00E+00	2.08E-09	5.00E-06	0.00E+00	0.00E+00

Source Description	Potential to Emit (PTE)																	
	Naphthalene		Toluene		Xylenes		o-xylene		m-xylene		Arsenic Compounds		Beryllium Compounds		Cadmium Compounds		Chromium Compounds	
	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr
Drill Rig Equipment	4.74E-02	3.03E-02	6.26E-02	1.55E-02	4.30E-02	1.06E-02	3.45E-02	8.57E-03	3.58E-02	9.02E-03	3.27E-03	8.32E-04	2.10E-05	2.52E-05	4.00E-03	9.96E-04	2.41E-03	1.11E-02
Ice Breaker 1	4.73E-02	1.56E-02	5.85E-02	1.87E-02	4.02E-02	1.29E-02	3.27E-02	1.05E-02	3.38E-02	1.09E-02	2.91E-03	9.45E-04	2.22E-05	7.49E-06	3.32E-03	1.09E-03	1.90E-03	6.25E-04
Ice Breaker 2	4.73E-02	1.56E-02	5.85E-02	1.87E-02	4.02E-02	1.29E-02	3.27E-02	1.05E-02	3.38E-02	1.09E-02	2.91E-03	9.45E-04	2.22E-05	7.49E-06	3.32E-03	1.09E-03	1.90E-03	6.25E-04
Anchor Handler Tug Supply Vessel (AHTS)	7.93E-03	2.08E-04	1.97E-02	9.62E-04	1.36E-02	6.70E-04	1.03E-02	3.78E-04	1.06E-02	3.91E-04	7.87E-04	2.90E-05	0.00E+00	0.00E+00	7.38E-04	2.72E-05	3.44E-04	1.27E-05
Oil Spill Response Vessel 1 (Dedicated OSRV)	9.29E-03	2.24E-03	2.05E-02	4.85E-03	1.41E-02	3.33E-03	1.14E-02	2.73E-03	1.18E-02	2.82E-03	8.74E-04	2.09E-04	0.00E+00	0.00E+00	8.20E-04	1.96E-04	3.82E-04	9.15E-05
Oil Spill Response Vessel 2	4.56E-03	1.06E-04	1.03E-02	2.32E-04	7.08E-03	1.59E-04	5.66E-03	1.30E-04	5.85E-03	1.34E-04	4.33E-04	9.96E-06	0.00E+00	0.00E+00	4.06E-04	9.33E-06	1.89E-04	4.36E-06
Offshore Supply Vessels (OSV1 & OSV2)	8.18E-03	1.70E-03	2.03E-02	4.20E-03	1.40E-02	2.89E-03	1.06E-02	2.20E-03	1.10E-02	2.27E-03	8.11E-04	1.68E-04	0.00E+00	0.00E+00	7.61E-04	1.58E-04	3.55E-04	7.37E-05
34' boom work boats - 4	1.35E-03	3.25E-05	6.53E-03	1.57E-04	4.55E-03	1.09E-04	2.52E-03	6.06E-05	2.61E-03	6.26E-05	1.93E-04	4.64E-06	0.00E+00	0.00E+00	1.81E-04	4.35E-06	8.46E-05	2.03E-06
Marine Research Vessel	9.84E-04	2.95E-04	2.69E-03	8.07E-04	1.86E-03	5.57E-04	1.33E-03	4.00E-04	1.38E-03	4.14E-04	1.02E-04	3.07E-05	0.00E+00	0.00E+00	9.58E-05	2.87E-05	4.47E-05	1.34E-05
Spill Storage Tanker	6.07E-01	1.56E-02	4.38E-02	2.00E-04	3.08E-02	1.56E-04	2.33E-02	7.67E-05	2.41E-02	7.93E-05	2.63E-03	2.82E-05	6.35E-04	1.67E-05	2.31E-03	2.22E-05	1.42E-03	1.93E-05
All Vessels Fuel Tanks	0.00E+00	0.00E+00	7.71E-08	1.85E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.58E-07	3.80E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Source Description	Potential to Emit (PTE)											
	Lead Compounds		Manganese Compounds		Mercury Compounds		Nickel Compounds		Polycyclic Organic Matter		Selenium Compounds	
	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr
Drill Rig Equipment	4.32E-02	2.59E-01	5.16E-03	1.32E-03	4.09E-03	1.03E-03	7.54E-03	1.10E-02	6.53E-02	3.49E-02	3.74E-03	1.03E-03
Ice Breaker 1	3.17E-02	1.05E-02	4.89E-03	1.58E-03	3.64E-03	3.32E-01	6.81E-03	2.20E-03	6.42E-02	2.10E-02	3.55E-03	1.15E-03
Ice Breaker 2	3.17E-02	1.05E-02	4.89E-03	1.58E-03	3.64E-03	3.32E-01	6.81E-03	2.20E-03	6.42E-02	2.10E-02	3.55E-03	1.15E-03
Anchor Handler Tug Supply Vessel (AHTS)	4.08E-03	1.50E-04	1.53E-03	5.61E-05	9.84E-04	3.62E-05	1.92E-03	7.06E-05	1.32E-02	4.07E-04	1.08E-03	3.98E-05
Oil Spill Response Vessel 1 (Dedicated OSRV)	4.54E-03	1.08E-03	1.69E-03	4.05E-04	1.09E-03	2.61E-04	2.13E-03	5.10E-04	1.52E-02	3.65E-03	1.20E-03	2.88E-04
Oil Spill Response Vessel 2	2.25E-03	5.16E-05	8.39E-04	1.93E-05	5.41E-04	1.24E-05	1.06E-03	2.43E-05	7.48E-03	1.74E-04	5.95E-04	1.37E-05
Offshore Supply Vessels (OSV1 & OSV2)	4.21E-03	8.73E-04	1.57E-03	3.26E-04	1.01E-03	2.10E-04	1.98E-03	4.10E-04	1.37E-02	2.84E-03	1.12E-03	2.32E-04
34' boom work boats - 4	1.00E-03	2.41E-05	3.74E-04	8.99E-06	2.42E-04	5.80E-06	4.71E-04	1.13E-05	2.68E-03	6.44E-05	2.66E-04	6.38E-06
Marine Research Vessel	5.30E-04	1.59E-04	1.98E-04	5.94E-05	1.28E-04	3.83E-05	2.49E-04	7.47E-05	1.68E-03	5.03E-04	1.41E-04	4.22E-05
Spill Storage Tanker	1.12E-02	8.06E-05	4.73E-03	4.48E-05	2.87E-03	2.41E-05	4.99E-03	3.10E-05	6.20E-01	1.56E-02	5.63E-03	9.17E-05
All Vessels Fuel Tanks	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E-07	2.40E-04	0.00E+00	0.00E+00

PTE	
Totals	
Hourly (lb/hr)	Annual (tons/yr)
2.25E+00	9.18E-01
1.86E+00	9.39E-01
1.86E+00	9.39E-01
3.71E-01	1.46E-02
4.06E-01	9.69E-02
2.02E-01	4.62E-03
3.82E-01	7.93E-02
9.82E-02	2.36E-03
4.87E-02	1.46E-02
3.47E+00	7.25E-02
3.54E-07	8.50E-04

TOTALS	**10.95**	**3.08**

Devil's Paw Prospect - HAPs Proposed Allowable Annual Emissions Inventory - Option 2 - Ware Vessel (w/ backup OSV and OSV/AHTS)

Source Description	Potential to Emit (PTE)																	
	Acet-aldehyde		Acrolein		Benzene		1,3-Butadiene		Chloro-benzene		Ethyl-benzene		Form-aldehyde		Hexane		Hydrochloric acid	
	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr
Drill Rig Equipment	1.95E-01	6.61E-02	4.00E-02	2.76E-02	1.71E-01	4.23E-02	9.69E-03	3.16E-03	3.41E-04	9.47E-05	1.81E-02	4.57E-03	2.13E-01	7.00E-02	4.45E-02	1.11E-02	1.20E+00	2.97E-01
Ice Breaker 1	1.87E-01	6.05E-02	3.99E-02	1.32E-02	1.61E-01	5.17E-02	9.29E-03	3.01E-03	3.24E-04	1.05E-04	1.71E-02	5.52E-03	2.02E-01	6.51E-02	4.21E-02	1.36E-02	8.62E-01	2.86E-01
Ice Breaker 2	1.87E-01	6.05E-02	3.99E-02	1.32E-02	1.61E-01	5.17E-02	9.29E-03	3.01E-03	3.24E-04	1.05E-04	1.71E-02	5.52E-03	2.02E-01	6.51E-02	4.21E-02	1.36E-02	8.62E-01	2.86E-01
Anchor Handler Tug Supply Vessel (AHTS)	5.21E-02	1.84E-03	6.33E-03	2.22E-04	5.22E-02	2.21E-03	2.64E-03	9.37E-05	9.84E-05	3.62E-06	5.36E-03	1.97E-04	6.05E-02	2.78E-03	1.32E-02	4.87E-04	9.17E-02	3.37E-03
Oil Spill Response Vessel 1 (Dedicated OSRV)	5.84E-02	1.40E-02	7.09E-03	1.70E-03	5.63E-02	1.34E-02	2.95E-03	7.07E-04	1.09E-04	2.61E-05	5.96E-03	1.42E-03	6.40E-02	1.52E-02	1.47E-02	3.52E-03	1.02E-01	2.43E-02
Oil Spill Response Vessel 2	2.89E-02	6.65E-04	3.51E-03	8.08E-05	2.81E-02	6.39E-04	1.46E-03	3.36E-05	5.41E-05	1.24E-06	2.95E-03	6.78E-05	3.20E-02	7.24E-04	7.28E-03	1.67E-04	5.04E-02	1.16E-03
Ware Vessel (WV) w/ OSV/AHTS backup	4.75E-02	1.25E-02	5.77E-03	1.52E-03	4.59E-02	1.20E-02	2.40E-03	6.31E-04	8.90E-05	2.33E-05	4.85E-03	1.27E-03	5.21E-02	1.35E-02	1.20E-02	3.14E-03	8.29E-02	2.17E-02
34' boom work boats - 4	1.22E-02	2.94E-04	1.48E-03	3.54E-05	1.49E-02	3.57E-04	6.24E-04	1.50E-05	2.42E-05	5.80E-07	1.32E-03	3.16E-05	1.88E-02	4.52E-04	3.25E-03	7.80E-05	2.25E-02	5.40E-04
Marine Research Vessel	6.73E-03	2.02E-03	8.16E-04	2.45E-04	6.94E-03	2.08E-03	3.41E-04	1.02E-04	1.28E-05	3.83E-06	6.96E-04	2.09E-04	8.16E-03	2.45E-03	1.72E-03	5.15E-04	1.19E-02	3.57E-03
Spill Storage Tanker	6.81E-01	1.52E-02	5.76E-01	1.48E-02	1.19E-01	4.83E-04	2.97E-02	6.45E-04	5.44E-04	9.18E-06	1.46E-02	1.03E-04	1.30E-01	4.40E-04	3.20E-02	1.50E-04	5.06E-01	8.55E-03
All Vessels Fuel Tanks	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.33E-09	2.00E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.33E-09	2.00E-05	0.00E+00	0.00E+00	2.08E-09	5.00E-06	0.00E+00	0.00E+00

Source Description	Potential to Emit (PTE)																	
	Naphthalene		Toluene		Xylenes		o-xylene		m-xylene		Arsenic Compounds		Beryllium Compounds		Cadmium Compounds		Chromium Compounds	
	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr
Drill Rig Equipment	4.74E-02	3.03E-02	6.26E-02	1.55E-02	4.30E-02	1.06E-02	3.45E-02	8.57E-03	3.58E-02	9.02E-03	3.27E-03	8.32E-04	2.10E-05	2.52E-05	4.00E-03	9.96E-04	2.41E-03	1.11E-02
Ice Breaker 1	4.73E-02	1.56E-02	5.85E-02	1.87E-02	4.02E-02	1.29E-02	3.27E-02	1.05E-02	3.38E-02	1.09E-02	2.91E-03	9.45E-04	2.22E-05	7.49E-06	3.32E-03	1.09E-03	1.90E-03	6.25E-04
Ice Breaker 2	4.73E-02	1.56E-02	5.85E-02	1.87E-02	4.02E-02	1.29E-02	3.27E-02	1.05E-02	3.38E-02	1.09E-02	2.91E-03	9.45E-04	2.22E-05	7.49E-06	3.32E-03	1.09E-03	1.90E-03	6.25E-04
Anchor Handler Tug Supply Vessel (AHTS)	7.93E-03	2.08E-04	1.97E-02	9.62E-04	1.36E-02	6.70E-04	1.03E-02	3.78E-04	1.06E-02	3.91E-04	7.87E-04	2.90E-05	0.00E+00	0.00E+00	7.38E-04	2.72E-05	3.44E-04	1.27E-05
Oil Spill Response Vessel 1 (Dedicated OSRV)	9.29E-03	2.24E-03	2.05E-02	4.85E-03	1.41E-02	3.33E-03	1.14E-02	2.73E-03	1.18E-02	2.82E-03	8.74E-04	2.09E-04	0.00E+00	0.00E+00	8.20E-04	1.96E-04	3.82E-04	9.15E-05
Oil Spill Response Vessel 2	4.56E-03	1.06E-04	1.03E-02	2.32E-04	7.08E-03	1.59E-04	5.66E-03	1.30E-04	5.85E-03	1.34E-04	4.33E-04	9.96E-06	0.00E+00	0.00E+00	4.06E-04	9.33E-06	1.89E-04	4.36E-06
Ware Vessel (WV) w/ OSV/AHTS backup	7.56E-03	2.00E-03	1.67E-02	4.33E-03	1.15E-02	2.98E-03	9.30E-03	2.44E-03	9.61E-03	2.52E-03	7.12E-04	1.87E-04	0.00E+00	0.00E+00	6.67E-04	1.75E-04	3.11E-04	8.17E-05
34' boom work boats - 4	1.35E-03	3.25E-05	6.53E-03	1.57E-04	4.55E-03	1.09E-04	2.52E-03	6.06E-05	2.61E-03	6.26E-05	1.93E-04	4.64E-06	0.00E+00	0.00E+00	1.81E-04	4.35E-06	8.46E-05	2.03E-06
Marine Research Vessel	9.84E-04	2.95E-04	2.69E-03	8.07E-04	1.86E-03	5.57E-04	1.33E-03	4.00E-04	1.38E-03	4.14E-04	1.02E-04	3.07E-05	0.00E+00	0.00E+00	9.58E-05	2.87E-05	4.47E-05	1.34E-05
Spill Storage Tanker	6.07E-01	1.56E-02	4.38E-02	2.00E-04	3.08E-02	1.56E-04	2.33E-02	7.67E-05	2.41E-02	7.93E-05	2.63E-03	2.82E-05	6.35E-04	1.67E-05	2.31E-03	2.22E-05	1.42E-03	1.93E-05
All Vessels Fuel Tanks	0.00E+00	0.00E+00	7.71E-08	1.85E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.58E-07	3.80E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

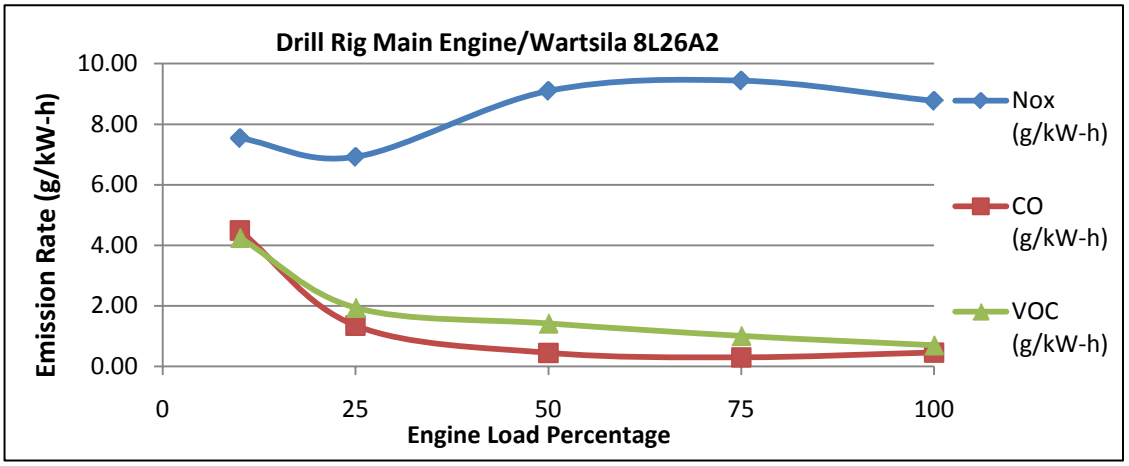
Source Description	Potential to Emit (PTE)												PTE	
	Lead Compounds		Manganese Compounds		Mercury Compounds		Nickel Compounds		Polycyclic Organic Matter		Selenium Compounds		Totals	
	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly lb/hr	Annual tons/yr	Hourly (lb/hr)	Annual (tons/yr)
Drill Rig Equipment	4.32E-02	2.59E-01	5.16E-03	1.32E-03	4.09E-03	1.03E-03	7.54E-03	1.10E-02	6.53E-02	3.49E-02	3.74E-03	1.03E-03	2.25E+00	9.18E-01
Ice Breaker 1	3.17E-02	1.05E-02	4.89E-03	1.58E-03	3.64E-03	3.32E-01	6.81E-03	2.20E-03	6.42E-02	2.10E-02	3.55E-03	1.15E-03	1.86E+00	9.39E-01
Ice Breaker 2	3.17E-02	1.05E-02	4.89E-03	1.58E-03	3.64E-03	3.32E-01	6.81E-03	2.20E-03	6.42E-02	2.10E-02	3.55E-03	1.15E-03	1.86E+00	9.39E-01
Anchor Handler Tug Supply Vessel (AHTS)	4.08E-03	1.50E-04	1.53E-03	5.61E-05	9.84E-04	3.62E-05	1.92E-03	7.06E-05	1.32E-02	4.07E-04	1.08E-03	3.98E-05	3.71E-01	1.46E-02
Oil Spill Response Vessel 1 (Dedicated OSRV)	4.54E-03	1.08E-03	1.69E-03	4.05E-04	1.09E-03	2.61E-04	2.13E-03	5.10E-04	1.52E-02	3.65E-03	1.20E-03	2.88E-04	4.06E-01	9.69E-02
Oil Spill Response Vessel 2	2.25E-03	5.16E-05	8.39E-04	1.93E-05	5.41E-04	1.24E-05	1.06E-03	2.43E-05	7.48E-03	1.74E-04	5.95E-04	1.37E-05	2.02E-01	4.62E-03
Ware Vessel (WV) w/ OSV/AHTS backup	3.69E-03	9.68E-04	1.38E-03	3.62E-04	8.90E-04	2.33E-04	1.73E-03	4.55E-04	1.24E-02	3.26E-03	9.79E-04	2.57E-04	3.31E-01	8.65E-02
34' boom work boats - 4	1.00E-03	2.41E-05	3.74E-04	8.99E-06	2.42E-04	5.80E-06	4.71E-04	1.13E-05	2.68E-03	6.44E-05	2.66E-04	6.38E-06	9.82E-02	2.36E-03
Marine Research Vessel	5.30E-04	1.59E-04	1.98E-04	5.94E-05	1.28E-04	3.83E-05	2.49E-04	7.47E-05	1.68E-03	5.03E-04	1.41E-04	4.22E-05	4.87E-02	1.46E-02
Spill Storage Tanker	1.12E-02	8.06E-05	4.73E-03	4.48E-05	2.87E-03	2.41E-05	4.99E-03	3.10E-05	6.20E-01	1.56E-02	5.63E-03	9.17E-05	3.47E+00	7.25E-02
All Vessels Fuel Tanks	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E-07	2.40E-04	0.00E+00	0.00E+00	3.54E-07	8.50E-04

TOTALS	10.90	3.09

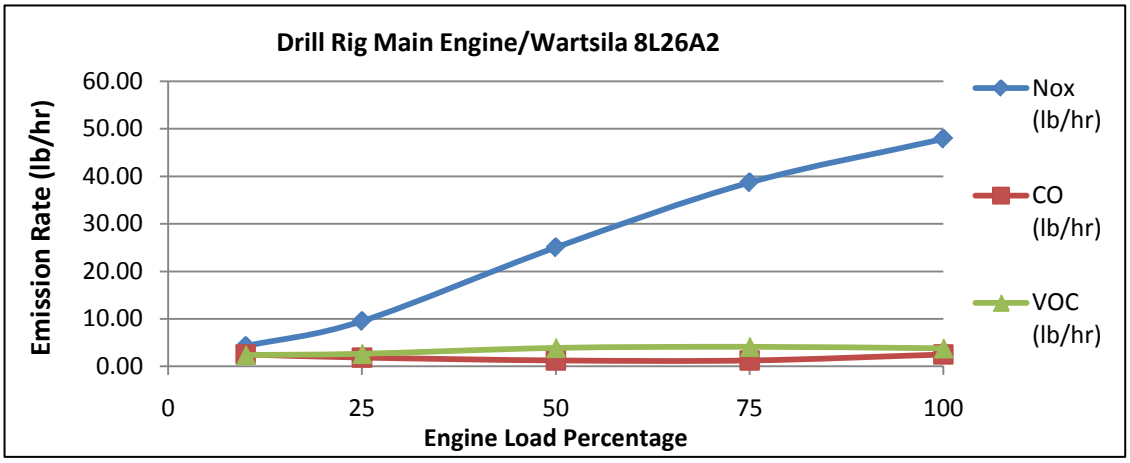
Appendix B
Drill Rig Engine Load Emissions Profiles

Wartsila 8L26A2 Engine
Drill Rig Main Engine - Uncontrolled

Engine Rating (kW)	Percent Load	Nox (g/kW-h)	CO (g/kW-h)	VOC (g/kW-h)	PM (g/kW-hr)
2480	100	8.77	0.46	0.70	None available
1862	75	9.44	0.30	1.01	from the
1249	50	9.10	0.45	1.42	manufacturer.
624	25	6.92	1.35	1.94	
256	10	7.54	4.49	4.25	

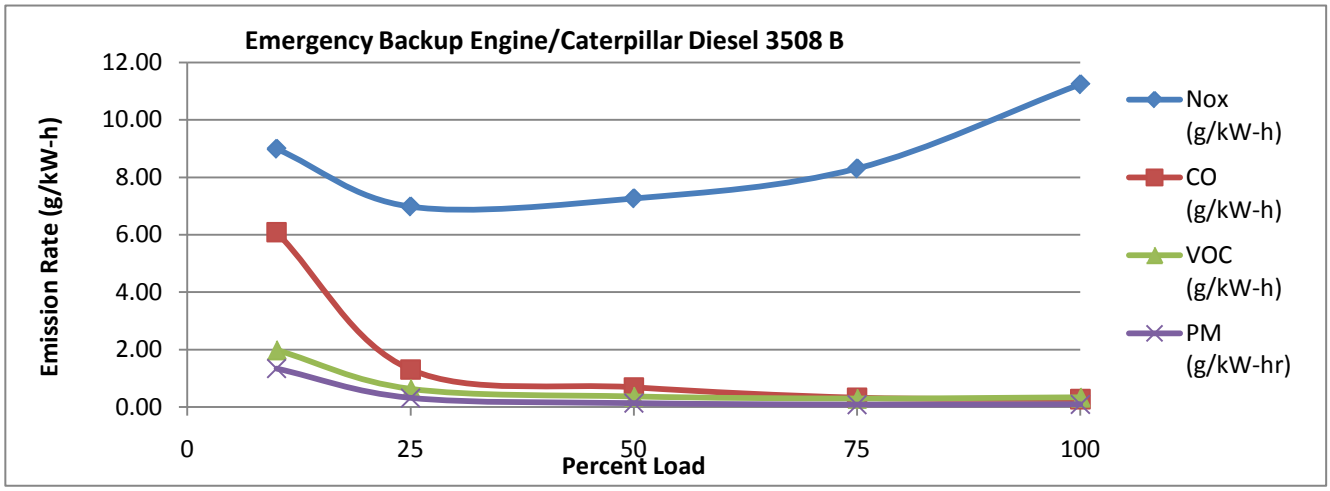


Engine Rating (kW)	Percent Load	Nox (lb/hr)	CO (lb/hr)	VOC (lb/hr)	PM (lb/hr)
2480	100	47.91	2.51	3.82	None available
1862	75	38.72	1.23	4.14	from the
1249	50	25.04	1.24	3.91	manufacturer.
624	25	9.51	1.86	2.67	
256	10	4.25	2.53	2.40	

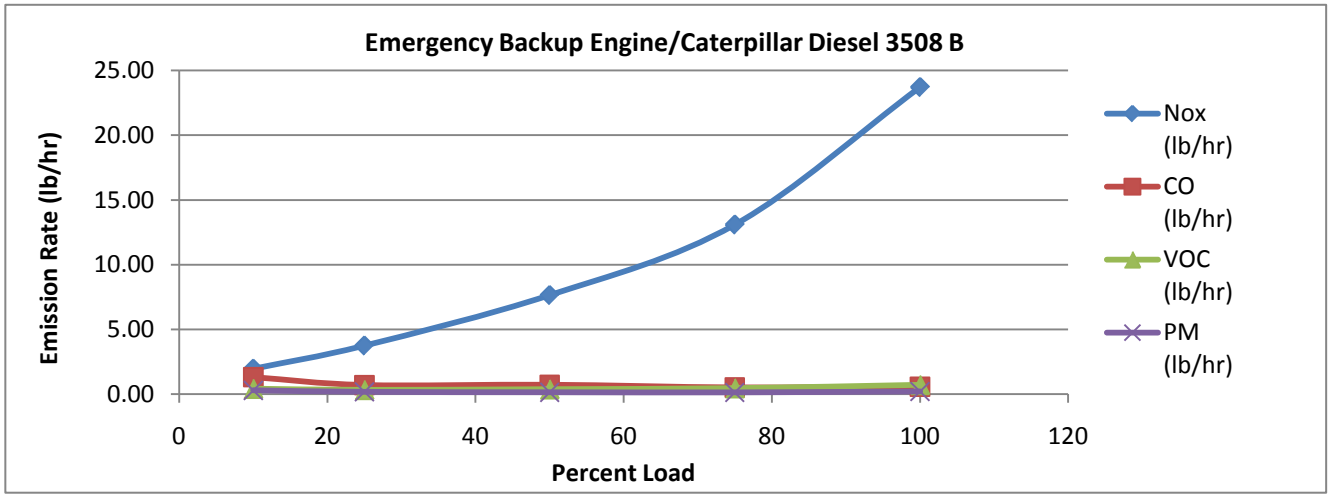


Caterpillar Diesel 3508 B
Drill Rig Emergency Back-up Engine

Engine Rating (hp)	Engine Rating (kW)	Percent Load	Fuel Use (g/kW-h)	Nox (g/kW-h)	CO (g/kW-h)	VOC (g/kW-h)	PM (g/kW-hr)
1285	959	100	205	11.23	0.27	0.34	0.09
959	715	75	210	8.31	0.32	0.30	0.08
640	477	50	220	7.27	0.68	0.37	0.13
326	243	25	251	6.98	1.31	0.63	0.32
132	98	10	350	8.99	6.09	1.98	1.34

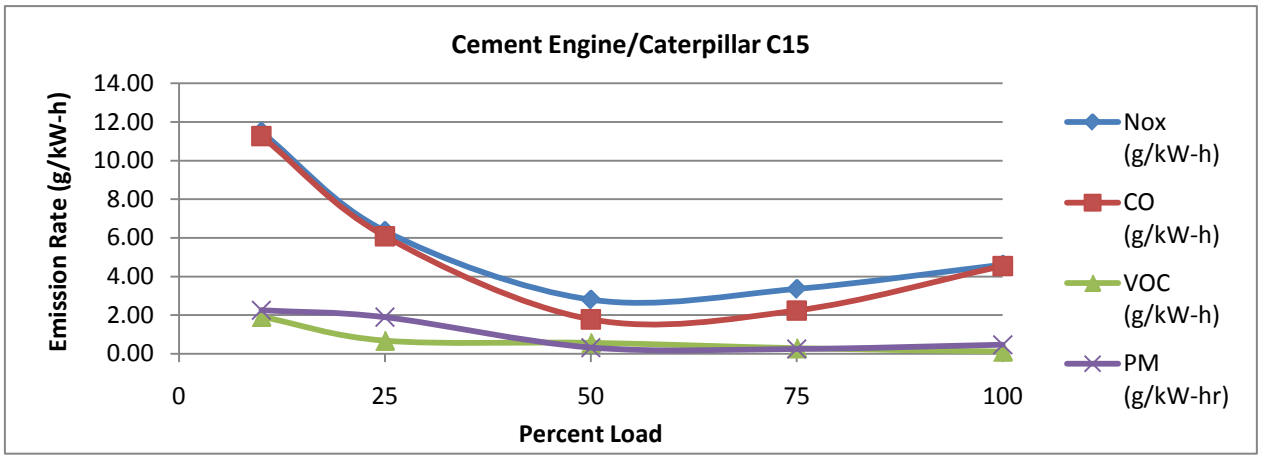


Engine Rating (hp)	Engine Rating (kW)	Percent Load	Fuel Use (lb/hr)	Nox (lb/hr)	CO (lb/hr)	VOC (lb/hr)	PM (lb/hr)
1285	959	100	432	23.72	0.58	0.72	0.2
959	715	75	331	13.09	0.51	0.47	0.13
640	477	50	231	7.64	0.72	0.39	0.14
326	243	25	134	3.74	0.70	0.34	0.17
132	98	10	76	1.95	1.32	0.43	0.29

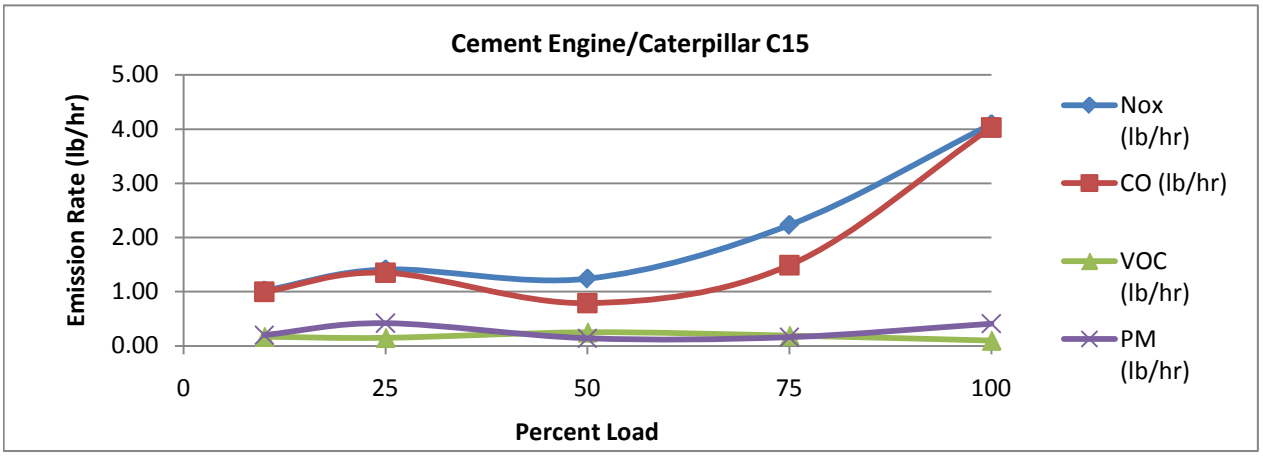


Drill Rig Cement Engine Caterpillar C15 DITA
Engine Speed 2,100 RPM

Engine Rating (hp)	Engine Rating (kW)	Percent Load	Nox (g/kW-h)	CO (g/kW-h)	VOC (g/kW-h)	PM (g/kW-hr)
540	403	100	4.61	4.54	0.11	0.46
405	302	75	3.35	2.24	0.29	0.24
270	201	50	2.79	1.78	0.56	0.32
135	101	25	6.36	6.09	0.68	1.89
54	40	10	11.50	11.27	1.92	2.25

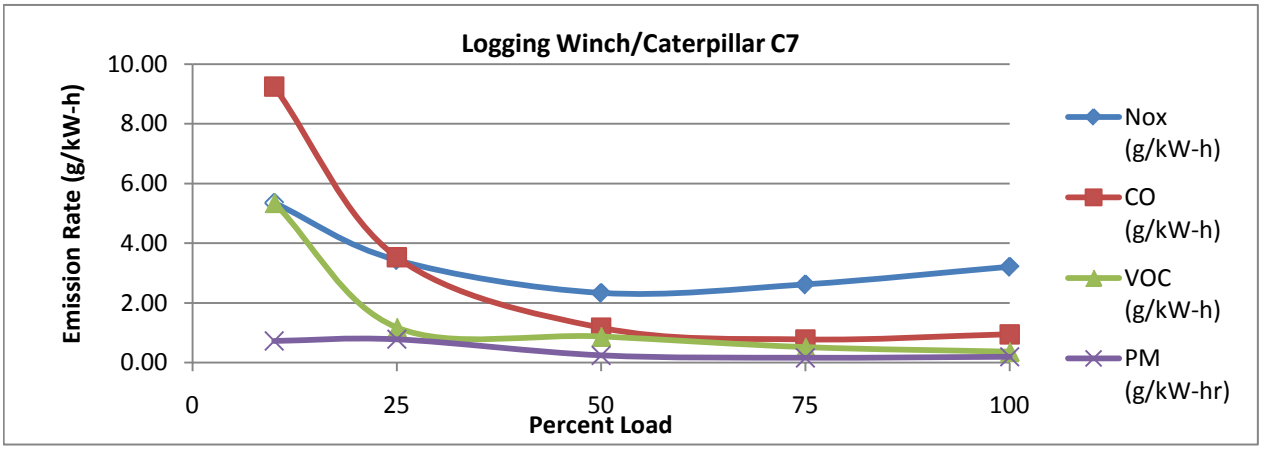
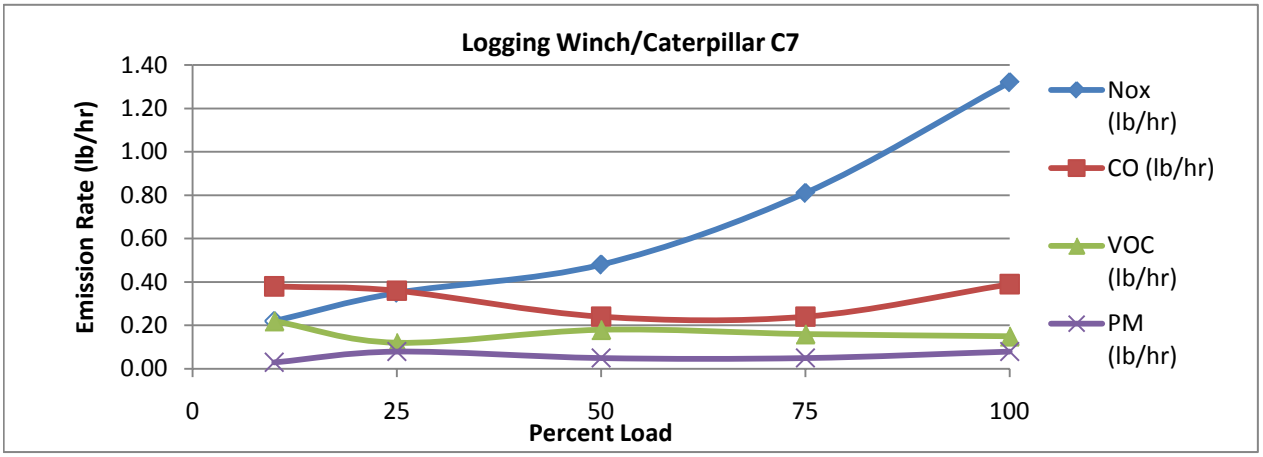


Engine Rating (hp)	Engine Rating (kW)	Percent Load	Nox (lb/hr)	CO (lb/hr)	VOC (lb/hr)	PM (lb/hr)
540	403	100	4.09	4.03	0.10	0.41
405	302	75	2.23	1.49	0.19	0.16
270	201	50	1.24	0.79	0.25	0.14
135	101	25	1.41	1.35	0.15	0.42
54	40	10	1.02	1.00	0.17	0.20



Drill Rig Logging Winch Caterpillar C7
Engine Speed 2,200 RPM

Engine Rating (hp)	Engine Rating (kW)	Percent Load	Nox (g/kW-h)	CO (g/kW-h)	VOC (g/kW-h)	PM (g/kW-hr)
250	186	100	3.21	0.95	0.37	0.19
188	140	75	2.62	0.78	0.52	0.16
125	93	50	2.34	1.17	0.88	0.24
62	46	25	3.44	3.53	1.18	0.79
25	19	10	5.36	9.25	5.36	0.73



Engine Rating (hp)	Engine Rating (kW)	Percent Load	Nox (lb/hr)	CO (lb/hr)	VOC (lb/hr)	PM (lb/hr)
250	186	100	1.32	0.39	0.15	0.08
188	140	75	0.81	0.24	0.16	0.05
125	93	50	0.48	0.24	0.18	0.05
62	46	25	0.35	0.36	0.12	0.08
25	19	10	0.22	0.38	0.22	0.03